THE PHILCO CORPORATION:

HISTORICAL REVIEW & STRATEGIC ANALYSIS

1892 - 1961

by

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B.S. WORCESTER POLYTECHNIC INSTITUTE
(1973)

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF

MASTER OF SCIENCE
IN MANAGEMENT

at the:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June, 1981

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Submitted to the Alfred P. Sloan School of Management
on May 18, 1981 in partial fulfillment of the
requirements for the degree of
Master of Science in Management

ABSTRACT

The purpose of this thesis is twofold; to construct
a conceptual framework from the strategic events in Philco's
corporate life and to provide a complete history of the
Philco Corporation from its inception in 1892 to the end
of its existence as a separate entity in 1961. A comparison
of my findings with existing works in corporate strategic
theory is also included.

The Philco story clearly portrays the importance of a
number of strategic elements. Among these are having an
integrated strategy, choosing the correct role model,
having a strong and consistent management team, choosing
appropriate types of diversification and understanding the
dynamics of structure and strategy. Philco's success was
based on a successful blend of these elements; its
ultimate failure was caused by the firm's neglect of them.

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I. Introduction

It has long been my belief that the study of industrial history can provide the reader with insights into many of the business problems of today. Consequently, this thesis is largely a historical analysis and an exercise in inductive reasoning. By studying the events in Philco's history, I have attempted to discover patterns in the firm's reactions to external factors which might prove useful in helping to understand some of the problems which similar firms of today might be facing.

Many of the conclusions I have reached are also found in prior studies, and this thesis in many ways supports the findings of previous works in industrial history and strategy. But it differs from many such works by showing that institutions as well as industries also possess a unique dynamic of their own. The study of a particular firm and its interactions with its environment over a period of many years, therefore, brings an added dimension to the study of corporate strategy.

In addition to constructing a conceptual framework from the strategic events in Philco's corporate life, this thesis also aims to provide a complete history of the Philco Corporation. Therefore, to a large degree, I have separated the historical material from the analytic material.

I chose the Philco Corporation as the basis of this study for a number of reasons. Philco is interesting because it provides an extreme case of success and failure. Throughout most of its history, Philco was an important force in its industry. Thus, many of its strategic decisions had an industry-wide impact. Finally, as a student of radio industry history for the past fifteen years, I have gained a familiarity with
the radio industry, its players and its technology that only a long
time association can bring. Such in-depth technical and historical
knowledge is necessary for the sound study of the institutional
history of a business. Consequently, for me, Philco provided the
ideal subject for this study.

The Philco story clearly portrays the importance of a number of
strategic elements:

* having an integrated strategy
* choosing the right role model
* having a strong, competent and consistent management team
* choosing appropriate types of diversification
* understanding the dynamics of structure and strategy

Philco's success was based on a skillful blend of these elements; its
ultimate failure was caused by the firm's neglect of them.
II. Early History 1892 - 1927

In the spring of 1892, Thomas Spencer organized a small company in Philadelphia for the purpose of producing carbon arc lamps and associated equipment. Initially, the new firm was called the Spencer Company, but on October 11, 1892, the company changed its name to the Helios Electric Company after purchasing the U.S. Patent rights of a German firm of the same name. At this time, the firm which would eventually evolve into the Philco Corporation was officially incorporated.

By early 1893, articles were appearing in the foremost electrical trade journal of the time, Electrical World, announcing "The Helios Alternating Current Arc Lamp - the ingenious invention of Carl Coerper of Ehrenfeld, Germany."¹ According to Electrical World, the Helios arc lamps were suitable for use indoors or out and could be "seen in service (at the Worlds Columbian Exposition) on the Midway Plaisance and in the exhibit of the Ansonia Electric Company in the north gallery of the Electricity Building."² Apparently this publicity did little to help the tiny new firm since a lack of business forced the directors to close the plant at 1310 Filbert Street for two weeks in August, 1893. At one point in 1893, the company's treasurer reported a cash balance of 82 cents.³

By 1895, the Helios advertisements in Electrical World claimed that more Helios AC arc lamps were in use "than all other makes combined" (no doubt they were including the output of the German firm in this boast). Additionally, the Helios ad listed "the Spencer Improved Alternating Current Arc Lamp" and "focusing lamps especially adapted to plate engraving and stereopticon work"⁴. By late 1895 the firm had moved to new quarters at 1225 Callowhill Street in Philadelphia.⁵
Helios continued the manufacture of arc lamps for four more years staying close to bankruptcy for most of this period. In 1899 they sold the German Helios patent rights to the Helios-Upton Company of New Jersey for an undisclosed sum and apparently ceased production of arc lamps. By 1904 things were going so badly that the company was forced to appoint a Receiver. When the Receiver reported that the remaining Helios assets would bring only 20 cents on the dollar, the Board of Directors decided that "the company's property would be more valuable as a going concern than if sold out at a Receiver's sale". Thus, the directors liquidated some receivables and kept Helios afloat.

In 1906, the company was reorganized as the Philadelphia Storage Battery Company with five stockholders and $10,000 paid in capital. The charter set forth by the five incorporators gave them the powers of "manufacturing, contracting for and furnishing material and appliances relative to the use and application of steam, electricity, water, heat, power, natural and artificial gas." The five owners were listed as Frank S. Marr, President and Sales & Advertising Manager, (Marr remained President until his death on December 1, 1916); Edward Davis, Secretary & Treasurer; E. Earle Everett, Superintendent of the Plant; Edward Yarnall and a Mr. Witmer. The company's initial products were storage batteries for electrically propelled cars, trucks, launches and mine locomotives.

It is interesting to note that early Philco corporate histories make no mention of the Helios Electric Company. They trace the company's history back to 1906 and the incorporation of the Philadelphia Storage Battery Company. Later company histories move some of the events of 1906 back to 1892 in an attempt to link more closely the Helios Electric Company to Philco. My suspicion is that when the Philadelphia Storage Battery Company was organized in 1906, it purchased the remains of the ailing Helios Electric Company; this being Philco's only tie to the company founded by Thomas Spencer in 1892.
The Philadelphia Storage Battery Company's first plant, consisting of two sheet iron buildings and eighteen employees, was located at Emerald and Tioga Streets in the north end of Philadelphia. Its overall area measured 20,000 square feet including the yard. The office consisted of one desk, two chairs and a letterpress. On August 10, 1906, the company's first battery was installed in a Baker Electric Brougham owned by a Dr. Woodward. By 1907, business was strong enough to force a move to larger quarters on the opposite side of Emerald Street. In 1909, still larger facilities were constructed at Ontario and C Streets where the company remained for many years.

Business in these early years was not particularly strong. Until the advent of electric lighting and the self-starter for automobiles, in 1911, the market for storage batteries was relatively small. Philco legend states that at one point in these early years, the Plant Superintendent was forced to scrape soot out of the factory smoke stack in order to secure a supply of carbon for the battery plates and, thus, continue production in a time of scarce capital.

The company continued to grow however. By 1910 the Philadelphia Storage Battery Company was soundly financed and had declared a profit of $30,517. By 1913, sales had reached $576,000. The supply of auxiliary electric systems for battleships to the Navy during World War I allowed the company to record its first million dollar sales year ($1,600,000) in 1917. From this point forward, the company grew steadily even though it was never able to crack the lucrative original equipment market for automobile storage batteries (its Philadelphia competitor, the Electric Storage Battery Company, maker of Exide and Willard batteries claimed the lead in this field).

During 1919, the Philadelphia Storage Battery Company adopted a new and aggressive marketing strategy. In an attempt to capture an increased share of the aftermarket auto battery business, the firm adopted the name "Philco Diamond Grid" for its batteries and began
an advertising blitz in national magazines such as the Saturday Evening Post and the National Geographic. The company tried to differentiate its Philco batteries in a clever series of ads showing a motorist put in a precarious situation by a dead storage battery saying, "And then I got my Philco!"

This campaign was apparently quite successful since sales jumped to $4,300,000 in 1920 despite a crippling plant fire. But due to the postwar recession, sales fell by $1,000,000 in 1921. Fortunately for Philco, a new industry with a seemingly insatiable demand for storage batteries developed literally overnight in 1922 - radio.

Until 1920, the radio business was concerned primarily with point to point wireless telephone and telegraph communications. The few home radio sets in existence were owned by "amateur operators" who used their outfits to communicate with one another and to listen in on the commercial communications.

The Westinghouse Electric and Manufacturing Company changed radio from a commercial tool to a means of mass entertainment when it opened broadcasting station KDKA on November 2, 1920 to broadcast the Harding-Cox election returns. By the end of 1921, twenty-three broadcasting stations were on the air. At the end of 1922, there were 580! In 1923, more than 200 manufacturers produced 550,000 radio receivers, most of which required a storage battery to light the tube filaments. Philco General Manager, James M. Skinner, who had instituted the advertising blitz back in 1919, wasted no time in getting Philco into the radio battery business.

By 1923 advertisements appeared in the popular radio enthusiast magazines announcing "Philco Drynamic A & B Radio Batteries" and "Philco Trickle Chargers". The Drynamic batteries particularly appealed to dealers because they were shipped dry with the electrolyte added at the time of the sale. In typical Skinner style, Philco's
radio battery ads were large and prominently placed. Sales in 1924, the first full year of radio battery production, shot up to $4,700,000.

In August, 1925, Philco announced to the trade its line of Socket-Power units which were essentially self-charging electrolytic power supplies that did away with radio batteries entirely. At the same time, the company announced a progressive dealer sales program which instructed the dealer on the latest sales techniques to snare the customer. Backed by a $600,000\textsuperscript{10} advertising budget, Philco's 1926 sales reached $12,800,000 with 400,000 Socket-Power units sold. Philco claimed that in the 1926-27 season, over 200,000 people wanting Socket-Powers couldn't be supplied.\textsuperscript{11} Sales predictions for the 1927-28 season were set at over one million units, and the company began sponsoring the weekly Philco Hour over a nationwide network chain.

Philco's 1927 sales amounted to $15,400,000 with 500,000 Socket-Powers being sold. Despite the fact that this was Philco's best year yet, by the end of 1927 the market for radio batteries and Socket-Powers had almost completely disappeared. In August, 1927, the Radio Corporation of America had introduced a series of vacuum tubes whose filaments could operate on raw AC. Almost immediately, the major radio manufacturers introduced sets utilizing these tubes and containing built in power supplies which did away with batteries and Socket-Power units entirely. The Philadelphia Storage Battery Company was facing a catastrophe. Its entire manufacturing plant had become obsolete overnight. In an attempt to escape extinction, Philco entered the highly competitive radio receiver manufacturing industry. Radio set manufacturing was a logical choice, since it would allow Philco to continue to utilize its existing dealer organization and reputation among radio enthusiasts with a new product.
III. Success: 1928-1937

A. Historical Review

The period 1928 to 1937 is probably the most exciting in Philco's history. During this period, Philco transformed itself from a nearly defunct producer of storage batteries and radio power supplies into the nation's leading manufacturer of radio receivers. Philco's success in this era was far more than just luck. Instead, it was the result of a carefully honed strategic plan designed by a very able management team. Because its production, product, marketing and distribution strategies were considerably more sophisticated than the strategies of most of the competition, Philco was able to assume its position of leadership within three years of its entering the industry. But, by the end of this period, Philco's competition had become considerably smarter, and companies like RCA and Zenith began making inroads into Philco's dominant market position.

In order to accurately assess Philco's actions and strategies during its early years as a radio manufacturer, it is necessary to have a basic understanding of the climate of the radio industry during this period and of the actions of Philco's chief competitors.

In 1928, the radio set manufacturing industry was six years old. Thus, it may sound strange to term Philco's entry at this point as late. Yet, by 1928, the radio industry was already beginning to show some signs of maturity. The industry consisted of seventy manufacturers with sixteen new entrants and eighteen failures. Just two years earlier there were 115 manufacturers, 161 new entrants and 261 failures.

Eoyang\(^1\) states that the radio industry reached maturity in 1927 since after that date the number of manufacturers had stabilized at between
seventy and 100.

Technological advancement had been rapid between 1922 and 1928. In 1922, the typical radio receiver was an unsightly, finicky, complicated device operated by external batteries and usually listend to through headphones. The typical radio receiver of 1928 was an easy to tune, reliable, self-contained, AC-powered instrument often housed in an elaborate furniture cabinet. Progress in this period was so rapid that a one year old radio was often hopelessly obsolete. The radio industry further capitalized on this rapid obsolescence by adopting the concept of the annual model change, a tactic which was already common in the automobile industry. Radio receivers of the 1924-1942 period can be easily identified as to year of manufacture by certain common yearly styling changes which most manufacturers adopted. New models for the next year were introduced with great fanfare at the annual RMA (Radio Manufacturer’s Association) Trade Show which was held each June. The June date for the Trade Show was not chosen haphazardly. Radio was an extremely cyclical business. The bulk of each year’s business was done in the months of September, October, November, and December. Sales would decline steadily from January to April and would drop to almost nothing during the summer months due to atmospheric static and summertime outdoor activities. By introducing their new lines to the dealers in June, manufacturers could make last minute changes in response to dealer suggestions and competitive pressures before significant production began in July.

There seemed to be a deliberate attempt among the larger manufacturers to follow the practices of the automobile industry. Their motives were similar too - to make entry difficult for all but the largest firms and to squeeze out the smaller competition.

Radio sales in 1928 totaled 3,281,000 sets with a retail value of $400,000,000 and an average unit price of $122.00.² This was up considerably from the 1,350,000 sets sold in 1927. With seventy
manufacturers, one would expect the radio industry to have approached conditions of perfect competition. This was not the case, for the bulk of the business was enjoyed by the top five or ten manufacturers. Restrictive patent licensing practices were a major cause of these conditions, but business acumen among the top manufacturers played an important role as well.

At this point, it would be helpful to review the histories and strategies of the firms who would be Philco's major competitors over the next decade.

**RCA**
The Radio Corporation of America, incorporated on October 17, 1919, was essentially a government sanctioned monopoly created to ensure American prominence in the field of radio communication. Radio had been an important tactical weapon during World War I and the U.S. Government became concerned that most U.S. wireless installations were owned by the American Marconi Company, the American subsidiary of a British firm. To correct this potentially dangerous situation, the Government persuaded the General Electric Company (developers of the Alexanderson Alternator which had made long distance wireless communication possible) to create a domestic wireless company to ensure American leadership in this highly important field. General Electric then proceeded to buy up the British interests in American Marconi as well as all patents which were deemed useful to the future development of radio. In order to secure important patents, AT&T (which owned the De Forest three-element vacuum tube patents), the United Fruit Company (which owned the Pickard crystal-detector patents), and the Westinghouse Electric and Manufacturing Company (owner of the Armstrong regenerative circuit patent) were brought into RCA. When this structure was completed in 1921, the Radio Corporation owned nearly all of the basic patents in the radio art.

In 1922 when the market for home radio apparatus developed, RCA began acting as the marketing organization for the radio output of General
Electric and Westinghouse. Because of this cumbersome organizational structure, RCA had difficulty in moving as quickly as the market demanded. RCA's strategy in the twenties was to produce expensive, solidly constructed, conservatively designed receivers. RCA advertised its receivers as "investments", not as expendable consumer durables. In order to maintain its sales leadership, RCA refused to license other manufacturers under its patents (seventeen manufacturers had been licensed by Westinghouse under the Armstrong patents before Westinghouse entered RCA, however). This caused competitive manufacturers to scramble to develop new circuits that wouldn't infringe on RCA's patent structure.

Probably the most important of the non-RCA circuits was the Neutrodyne, invented in 1923 by Louis Hazeltine of the Stevens Institute of Technology. The Neutrodyne was a vast improvement over the Armstrong regenerative circuit since it did not squeal (re-radiate) and it allowed stations to be consistently tuned in at the same spot on the dials. Hazeltine quickly formed the Independent Radio Manufacturers, Inc. and invited fourteen of the top radio manufacturers to join. For their membership fee, these manufacturers received the right to use the Neutrodyne circuit as well as the technical services of the Hazeltine Laboratory.

But RCA was not to be outdone. In 1924, they introduced to the radio public a receiver which would surpass all others - the superheterodyne. The superhet was designed by Major E.H. Armstrong during World War I as a device which could detect enemy aircraft ignition pulses. RCA acquired Armstrong's superheterodyne patents when they took Westinghouse into the patent pool in 1921. The superheterodyne circuit was such an advance that it is still the basic circuit design used in radio and television receivers today.

RCA held the number one position in receiver sales in 1922, 1923, and 1924, their dollar sales comprising 18.3%, 16.5% and 14% of the respective yearly industry totals. But RCA lost the sales lead
in 1925 and would not regain it again until after World War II. Nineteen twenty-five was also the year in which RCA's basic three-element vacuum tube patents expired. After 1925, RCA was no longer able to restrict tube production to squeeze out other manufacturers (who couldn't obtain tubes for their sets). With its vacuum tube monopoly gone and its cumbersome management structure preventing it from achieving the top sales position, RCA needed another means to supplement its income. It opened an extremely lucrative cashflow when it began to issue manufacturing licenses under its patents in 1927. Initially, RCA restricted licenses to firms which it felt were substantial enough to carry on a reputable business; i.e., companies with receiver sales of more than $100,000. The royalty rate was set at 7-1/2 percent of the net selling price of each receiver. Until 1930, these licenses were for Tuned Ratio Frequency (T.R.F.) sets only and not for the more efficient superheterodyne. RCA wanted to retain this as an exclusive for a few more years.

Thus, although RCA's cumbersome management structure prevented it from maintaining the number one position in the industry, sales of RCA Radiolas were always among the top five. Due to its fine engineering, lavish advertising budget and significant patent holdings, RCA remained a major force to be reckoned with in the radio industry.

Atwater Kent Manufacturing Company
The sales leader in the radio industry for the years 1926, 1927, and 1928 was the Atwater Kent Manufacturing Company of Philadelphia. This highly respected firm was owned by Arthur Atwater Kent, a shrewd New Englander with a flair for business. Beginning in 1902 with the manufacture of intercommunicating telephone systems, the firm soon specialized in automobile ignition systems and grew rapidly. When the market for outside supplied auto ignition systems slowed in the early twenties, Atwater Kent moved into radio as a means of keeping his factory busy.
His first receivers, introduced in 1922, consisted of polished bakelite and brass components mounted on a mahogany board. His sales increased sharply in 1924 with the introduction of enclosed receivers and took another jump in 1925 with the introduction of compact receivers. His introduction of single dial tuning in 1926 moved him into the top sales position in the industry.

Atwater Kent's reputation was built on offering the public a quality product at a reasonable price. Atwater Kent receivers were spartan in appearance, but they were solidly constructed and they performed well. Mr. Kent kept his company's name before the public with one of the largest advertising budgets in the industry. And, equally important, his fair treatment of his dealer organization earned him the respect of the entire trade. If Atwater Kent was introducing a new model that would obsolete the models in dealer stock, he would either delay introduction of the new model until dealer stocks were depleted or offer to buy back the entire obsolete stock of Atwater Kent receivers at full wholesale cost.\(^4\) With these strategies, it is not surprising to find Atwater Kent leading in sales in 1928.

Grigsby-Grunow Company, Inc. (Majestic)
Another newcomer to the radio set industry in 1928, Grigsby-Grunow had a history remarkably similar to Philco's. Originally, a manufacturer of storage batteries, this Chicago based company began making battery eliminators in 1925. With RCA's introduction of the AC tube in August, 1927, Grigsby-Grunow was faced with the same problem as was Philco - a sudden plummeting of demand. Not surprisingly, Grigsby-Grunow also decided to enter the radio set manufacturing industry in early 1928. By April, 1928, Grigsby-Grunow had purchased the 500,000 square foot plant of the Yellow Truck & Coach Company in Chicago.\(^5\) The following month, the company announced their line of "Majestic" receivers highlighted by a $137.50 console with excellent styling and a powerful electrodynamic loudspeaker. Sets like this were unheard of at this price, thus, the Majestic 71 soon became one of the radio
industry's hottest sellers. Backed by an aggressive advertising campaign, Majestic shot up to the number one position in industry sales in 1929. The seasoned members of the radio industry watched the performance of this upstart with complete disbelief!

Zenith Radio Corporation
Another rising star in the radio industry in 1928 was the Zenith Radio Corporation. Zenith began in 1919 as the Chicago Radio Laboratories, a small "kitchen table" operation which made radio receiving sets for amateurs. The company made little progress until 1921 when Commander Eugene F. McDonald, Jr. joined the firm. One of McDonald's first moves was to change the name of the company to Zenith (after 9ZN, the company's amateur radio station). Over the next few years, McDonald's aim was to make Zenith the undisputed quality leader of the industry. McDonald was a master at product differentiation through advertising. Zenith made a quality product at a hefty price and their advertising continually hit home the idea of superiority - "Costs More But Does More" and "The Quality Goes in Before the Name Goes On". By 1928, Zenith was certainly one of the industry's profit leaders; its flagship model was housed in an elaborate hand carved cabinet and sold for $2,500.

1928 - Philco's Entry into the Radio Industry
From the preceding discussion, it is clear that Philco was facing stiff odds in entering the chaotic radio industry in 1928. Along with Majestic, however, Philco possessed an important asset which the other fourteen entrants to the industry that year lacked - an established dealer organization. Philco had worked hard in the radio battery and socket power days to build a solid dealer network. Taking a page out of the Atwater Kent book, Philco had always treated its dealers fairly. This strategy would pay off handsomely over the next few years.

In order to obtain licenses under the RCA and Hazeltine patents, Philco bought the ailing William J. Murdock Company of Chelsea, Massachusetts, for $100,000 on February 10, 1928. ⁶ The Murdock Company dated back to
the early days of wireless and was one of the original fourteen members of the Neutrodyne group. In order to gain access to important loudspeaker patents, Philco purchased the Timmons Radio Products Corporation of Philadelphia, a maker of radio loudspeakers.

The Philco Neutrodyne-Plus was introduced to the industry at the RMA Trade Show at the Hotel Stevens in Chicago the week of June 11, 1928. In the June, 1928, issue of Radio Retailing, the leading trade magazine of the industry, Philco introduced its line in an eight page, four-color, glossy paper supplement. Philco's first receiver line consisted of one seven tube chassis, known as Model 511, installed in one of several cabinets; a Louis XVI highboy, a console or a metal table-top cabinet available in furniture brown or with a hand-painted floral designed cabinet in labrador grey, nile green or mandarin red. In addition, a "console-grand" speaker table or individual speakers painted to match the table model receivers were available. Cabinets were designed by the famous furniture designers Hollingsworth-Pearce and Albert Carl Mowitz.

Despite all the advertising claims, however, the Philco Neutrodyne-Plus chassis was of conservative and standard design. Its one claim to fame was the fact that its AC power supply was built right into the receiver chassis instead of being a separate unit as on most other receivers. Philco emphasized the concepts "All Electric" and " Entirely Dry" to dispel any notions the public might have that this new radio might use the old-fashioned "Philotron" wet-rectifiers.

In order to test out the market before making any substantial financial commitments, Philco bought most of the Model 511's components from outside suppliers, merely assembling them at the Ontario and C Street factory.

Philco management had several objectives for this first line of receivers. First, it had to be of extremely high quality to convince the radio public that the Philco reputation for quality was being continued. This objective was achieved. Secondly, Philco wanted to
convinced its existing and potential dealers that it would treat them fairly and would not, under any circumstances, dump merchandise - a practice that was common in the volatile radio industry at this time. The second goal took a while longer to achieve.

The Philco introductory ad promised dealers exclusive territories, an advertising campaign that "blankets the nation", national broadcasting of the weekly Philco Hour over thirty-six stations, a trade-in plan for old radio sets, and a liberal dealer financing plan. When the results for 1928 were tallied, Philco would up twenty-sixth in the industry selling 96,000 of the industry's 3,281,000 receivers. This was not a particularly bad showing considering that substantial stocks of Philco receivers were available only during the last four months of 1928. But, compared to Majestic's spectacular performance, Philco ranked a distant second among the newcomers. What had gone wrong?

In comparing Majestic's introductory strategy to Philco's, we see some significant differences. For 1928, Philco was testing the market. They added no new plant capacity until December, 1929, when 100,000 square feet was added, thus, doubling Philco's receiver capacity. Majestic, on the other hand, immediately purchased a 500,000 square foot plant, so their initial production capacity was much greater. Majestic ran the risk of incurring substantial financial losses, however, if their initial demand projections proved overly optimistic. Philco General Manager, James M. Skinner, summed up the firm's 1928 strategy by saying, "In 1928 our job was to walk before we ran; to make a good set and to establish a reputation for quality."9

By Skinner's measures, Philco's 1928 performance was successful. But Philco did make one important product blunder in its introductory line which Majestic did not. Philco receivers in 1928 came equipped with an ordinary magnetic loudspeaker of the type which had been in vogue for the past two years. Majestic, on the other hand, fitted its first receivers with the new and powerful electrodynamic
loudspeaker. It was this feature, more than any other, that set Majestic apart from its competition and caused it to rocket to the top of the industry in its first year and a half. Philco wasted no time in correcting this oversight, however. By January, 1929, an improved model was introduced which included a higher-power push-pull output stage and a new electrodynamic loudspeaker. Housed in a cabinet similar to the Majestic 71, this new model was priced at $157.00. In the introductory ad for this receiver, Philco claimed "1929 is a Philco year!".

1929 - Mass Production

Nineteen Twenty-Nine would prove to be a trying year for the Philadelphia Storage Battery Company. After testing the receiver market in 1928, Philco decided to expand. According to Jim Skinner, "In 1929, our job was to go out after volume and get it quickly before competition gained control." To do this, Philco decided to adapt mass production techniques to the assembly of radio receivers. For the first time in its history, Philco went into debt to finance this conversion by borrowing $3,000,000 from two Philadelphia banks. $1,000,000 was spent to enlarge the plant, $1,000,000 for installation of the conveyer system and $2,500,000 was spent for supplies. The project was completed in April, 1929, but in May the new assembly line halted due to improperly thought out material flow patterns and numerous other technical problems. The entire conveyor belt system had to be rebuilt. When the production line began rolling again in August, Philco was faced with a three month demand backlog.

But that was not the end of Philco's problems. In order to be competitive with industry practice, Philco sold radios to its distributors on time. The distributors then sold to dealers on time who in turn sold to customers on time. The distributors either waited for the dealers to pay up before paying the factory or went to the banks to sell their "paper". During the three month shutdown, Philco's receivables rose from $1,600,000 to $5,500,000. They had spent the $3,000,000 and now needed another
$4,000,000 to meet payroll and bills from suppliers. To make matters even worse, Philco had borrowed nearly up to the legal limit from its two regular banks. It appeared as if Philco's days in the radio manufacturing industry were over before they had really had a chance to get started.

At this point, one of Philco's bankers, Mr. Carl H. Chafee, of the First National Bank of Philadelphia, introduced Philco's management to Mr. Joseph Wayne, Jr., President of the city's largest bank, the Philadelphia National. Wayne listened to the Philco story and was at first reluctant, but when Philco officials Edward Davis (President), James Skinner (General Manager), and John Thomas (Treasurer) promised to personally guarantee the loan, he agreed to lend Philco the $4,000,000 they needed.

Mr. Wayne's decision proved to be sound. In spite of the stock market crash, Philco finished 1929 by selling 408,000\textsuperscript{15} sets out of an industry total of 4,428,000\textsuperscript{16} to capture third place (behind Majestic and Atwater Kent) in the industry. This allowed Philco's management to repay all loans by March, 1930, much to their relief! The rest of the trade watched in disbelief as the two newcomers to the industry, Majestic and Philco, grabbed off the lions share of sales. Most predicted a fast burn out for these two rising stars. In the case of Majestic, they were correct, but Philco had laid its plan carefully and would continue its meteoric rise.

Nineteen Twenty-Nine had proved to be one of the most chaotic years in this nation's economic history. For the radio industry, it was no different. Receiver sales in 1929 set a new record of 4,428,000 units which would not be exceeded until 1935. Due to extremely strong sales in the first half of the year, most manufacturers added significantly to their third and fourth quarter production schedules. When the market collapsed in early November, the industry found itself with 1,000,000 surplus sets. Prices plummeted as manufacturers dumped this surplus on the market causing 7,000 radio dealers to be put out of business.\textsuperscript{17}
A few of the more astute manufacturers saw trouble brewing earlier in the year and trimmed back production. In a recent interview, A. Atwater Kent, Jr., told the author that his father noticed a falling off in sales in the spring and, thus, trimmed production for the second half year. This may explain why Majestic was able to pass Atwater Kent to take the sales lead in 1929. Philco, however, avoided overproduction in 1929 for a different reason.

From the day Philco began manufacturing radio sets, on June 1, 1928, its officers were determined to take whatever measures were necessary to prevent overproduction. Thus, a production control plan called the "Monday Morning Conference" was instituted. Every Monday morning wires were received from Philco's 140 distributors across the U.S. and Canada informing management of the make up of each distributors stock and of sales to dealers which had occurred during the previous week. With this information, together with figures on warehouse stocks, work in progress and raw materials stock, Philco management was then able to accurately predict sales for the next five weeks and to schedule the week's production and purchasing activities. Consequently, neither Philco nor any of its distributors had any overstocks. This scheme sounds like simple common sense, but astonishingly, few of Philco's competitors used similar reporting systems! Thus, Philco ended 1929 with a normal inventory. The dealer network was beginning to believe the promises Philco had made in its entry advertising.

Of course Philco's success in 1929 would have been impossible without an excellent product line. Product strategy in 1929 was to increase quality and to lower prices - as much as possible. The 1929-30 line introduced at the June Trade Show offered excellent value for the money. All the latest technical advances were embodied in two chassis housed in four nicely styled cabinets. Jim Skinner was already earning his title of "price cutter" due to the value he was offering in Philco receivers. But the buying public knew good value and lined up to purchase Models 65 and 87.
In October, 1929, Philco introduced the first of many technical innovations to come when it unveiled Model 95, also called Screen Grid-Plus. Model 95 was a nine-tube T.R.F. receiver which incorporated one of the first automatic volume control (A.V.C.) systems in the industry. The circuit, designed by Hazeltine's Harold Wheeler, was made available to Philco through its Hazeltine license. (A.V.C. is a system which keeps stations of varying signal strength at the same volume, thus, preventing blasting when tuning down the dial.) Priced at only $149.95 in an attractive lowboy cabinet, the Screen Grid-Plus became an instant success.

1930 - Market Leadership

During 1930, Philco earned the top sales position in the industry and in the process incurred the wrath of its competitors. Due to the stock market crash and the rapidly contracting economy, industry analysts were predicting 1930 radio sales to be only about fifty to sixty percent of the sales achieved in 1929. According to Sayre M. Ramsdell, Philco's Promotion Manager at the time, "If we were to maintain sales where we had them the previous year, we realized we would have to do something truly aggressive. So we introduced a small, compact, comparatively inexpensive radio."

The idea of producing a compact or "midget" receiver was not originated by Philco. In early 1930, several of the smaller manufacturers had introduced small, speaker over chassis receivers shaped like gothic arches to sell at prices around $50. When compared to the average receiver price of $133 in 1929, this was quite a drop.

Although Philco did not originate the midget receiver, they were the first major manufacturers to adopt this style. The famous Philco Model 20, Baby Grand, a seven-tube T.R.F. receiver in "regulation" gothic cabinet, was introduced to the trade in August, 1930. Radio Retailing stated "There is genuine significance in Philco's announcement of a midget at $49.50 less tubes. This looks like the start of a new trend."
The initial reaction by the industry's other major producers was to look the other way and hope the public would too. Even some dealers were initially skeptical on the profit potential of these small sets. But to the depression torn public, the Model 20 proved to be just the radio they were waiting for. In less than one year, 343,000 of these compact receivers were produced. By the end of 1930, Philco had added two new plants, boosting area to 332,000 square feet and allowing Philco to manufacture in its own plants nearly every important part of its products. To supply Canadian demand, an assembly plant was constructed in Toronto, Ontario.

During 1930, Philco also entered the vacuum tube business which, coupled with its midget receiver, further angered the Radio Corporation of America. Philco had been one of RCA's biggest tube customers. During 1930, a tiff developed between Philco and RCA causing Philco to shift its tube business to two smaller, independent tube manufacturers, Sylvania and Hygrade. To sweeten the deal, the two independents agreed to put the Philco brand name on their tubes, thus, moving Philco into the tube marketing industry in direct competition with RCA. By 1934, Philco had gained nearly twenty percent of the replacement tube business.

Nineteen-Thirty had been a difficult year for most of the rest of the industry. Atwater Kent had decided to cut back, promotionally, for the period of the depression. By late 1930, B.J. Grigsby and William Grunow had separated and Majestic's star was fading quickly. Consequently, when the sales results for 1930 were counted, Philco was in first place, having sold 616,000 receivers out of an industry total of 3,827,000. Philco dollar sales for 1930 reached $34,000,000, up forty-eight percent from 1929.

1931 - Widening the Gap
In late 1930, Edward Davis, Philco's President since 1916, was elevated to the position of Chairman of the Board. General Manager, James M. Skinner, succeeded him as President. To Skinner must go much of the credit for
Philco's success up to this point. Coming to Philco in 1911 from the University of Pennsylvania (B.S. Chemical Engineering) he was the man responsible for getting the company into starting batteries, radio batteries, socket powers, and radios. 27 Skinner summed up Philco's strategy for 1931 as follows: "In 1931, the job was to get such a high percentage of the market that Philco would be recognized as the unquestionable leader and so that there would be no competitors close enough to challenge our lead." 28 Skinner claimed that the main things being done to widen the competitive gap were working hard enough, despite the depression, to outstrip competition, giving the public a lot of radio for the money and protecting Philco distributors, dealers and customers. He said "Philco has never dumped surplus stocks nor has it ever foisted obsolete models upon an unsuspecting public - and Philco never will." 29

In early 1931, most of the radio industry looked upon Philco's position of leadership as temporary. "How could a company that specialized in midget receivers continue to make money" they asked. During 1931, however, Philco evolved a merchandising plan to ensure continuation of sales leadership by enabling the company to claim a large share of the industry's higher-priced set business as well as of the lower-priced set market. 30 The technique was called "selling-up", that is, luring the customer into the store with a price leader, then comparing the low-line set to a superior model that could be bought for only $15.00 more than the prospect originally had intended to pay.

This scheme required a comprehensive line of receivers in order to be successful. Philco began expanding its line in January, 1931, by introducing an eleven-tube superheterodyne, Model 111, to the high end of its line. RCA had made the superheterodyne patents available to its licensees late in 1930 and Philco wasted no time in getting this superior receiver into production.
At the RMA Trade Show in June, the line for 1931-32 was expanded to include seven and nine-tube Baby Grands; seven, nine, and eleven-tube lowboys; seven, nine, and eleven-tube highboys; and seven and eleven-tube radio-phonograph combinations. All models used the superheterodyne circuit and the eleven-tube models were housed in striking cabinets styled by noted industrial designer, Norman bel Geddes. Prices ranged from $49.95 for Model 70 B, the seven-tube Baby Grand, to $295 for Model 212, an eleven-tube radio-phonograph combination. Within a few months, Philco had introduced a price leader five-tube Baby Grand at $36.50 (Model 50) and two novelty sets, Model 570, a seven-tube receiver housed in a grandfather clock cabinet ($89.50) and Model 370, a seven-tube receiver housed in an end table cabinet by Norman bel Geddes ($69.50).

The newly burgeoning automobile radio business did not escape Philco either. In December, 1930, they purchased the Automobile Radio Corporation and formed a new subsidiary, the Transitone Automobile Radio Corporation. With automobile radio, Philco hoped to fill in the summertime dip in home radio sales. By January, 1931, Philco had a seven-tube Transitone auto radio on the market at $65.00, one of the first auto radios priced under $100.00. The public responded and Philco sold 37,000 of these units in 1931.31

By April, 1931, Philco's performance with its Baby Grand receivers had forced Atwater Kent and RCA to introduce midget receivers of their own. Zenith followed a few months later. They complained that Philco was ruining the industry by lowering the price of the average sale. But Philco viewed the issue differently. Philco's Promotion Manager, Sayre Ramsdell, saw the midget as serving three purposes: "First, they open a brand new market among consumers who for one reason or another do not want a large set or are not able to pay for a big one. Second, that midget radios serve as the second set in many households where there already is a big radio receiver. Third, that they attract people to the dealer's store and lead them to buy a larger model."32 The other manufacturers eventually caught on to the usefulness of the midget,
but that did not stop them from continually attacking Philco as a "price cutter" and as the "bane of the industry".

Of course several other factors in addition to the "selling-up" scheme contributed to Philco's success in 1931. Consistent national and local advertising was certainly one of these. As other radio manufacturers cut back or eliminated their advertising budgets during the early years of the depression, Philco increased theirs. Philco's 1931 budget for radio, magazine and newspaper advertising was double that of 1930's already hefty sum. Philco sponsored the Army-Navy Football game and introduced Leopold Stokowski and the famous Philadelphia Orchestra to the radio public.

Philco's aim in 1931 was to sell 1,000,000 radios. They nearly achieved this goal by selling 977,000 receivers out of an industry total of 3,420,000. Philco dollar sales for 1931, however, remained at $34,000,000 despite the fact that unit volume had increased by nearly fifty percent. This was of little concern to Philco, however, since they were one of only a few radio manufacturers who made a profit in 1931, and they succeeded in their goal of widening the sales gap between themselves and the rest of the industry. In addition, by the end of 1931, Philco's dealers and distributors finally realized the sincerity of Philco's anti-dumping policy. While other manufacturers were scrambling to add to their depleted dealer body, as evidenced by their lavish advertising in the trade papers, Philco concentrated its advertising on consumer publications and actually had to turn away prospective dealers.

In an interview with Forbes magazine in 1931, Philco President, James M. Skinner, discussed the reasons behind his firm's success: "All through this depression, we have held to the idea that it was better to go steadily forward on our long-time program without considering the depression. We had a choice between agreeing that because business was bad we couldn't sell a million sets - or saying that because..."
business was bad we must give the public new value for its money. We chose the latter.
"There are two reasons why after we have built a set, we can deliver its performance at a price that gives the customer more value than he expects.
"In the first place, when we started in the set business, we poured several millions - all our liquid capital - into the building and equipping of an up-to-date manufacturing plant. So our costs are right. And we are not burdened with the over capitalization which has been a handicap to some companies.
"In the second place, we actually try very hard not to make too much money on a set! If we did, we would leave the road wide open for the other fellow. Indeed, we have a definite low percentage within which we try to keep our profit."38

These strategies would prove successful for Philco throughout the 1930's.

**Philco's Management Policies**
In its 1931 article about Philco, Forbes magazine claimed that Philco's management team was doing the best job of business development of any company of which they had knowledge.39 Certainly no company could have achieved Philco's results without a top-notch management team.

As of 1931, most of Philco's top executives had come up through the ranks. Philco did not make a policy of hiring executives from outside. Thus, each Philco executive was trained in the Philco style and had an intimate knowledge of the company's operations. This accounted in part for the high level of cooperation that was present among Philco executives.

Philco's management compensation plan was unique. Until 1940, the firm was privately held with all stock owned by current management and heirs to the founders. Executive salaries were low, but in prosperous years, the stock dividends were high. Philco sold or awarded its executives
stock with the proviso that the company could, at any time, buy the stock back at $110 per share. On the death of the holder, the stock returned to the company at the $110 figure. This ingenious plan was worked out in 1916 by Philco Chairman, Edward Davis, as a way of constantly refreshing management with new blood.\textsuperscript{40} The way he intended the plan to work was that the company should buy the stock of its older executives and distribute it among its rising men. Thus, no new shares had to be issued.

As a means of motivating management towards a common goal, this plan was outstanding. Squabbling among management was minimized because all were working towards the common goal of profits which could be paid out as dividends. \textit{Fortune} attributed Philco's leadership in the industry largely to this stock ownership plan saying that Philco "possessed the stamina often associated with corporations whose management also owns the stock."\textsuperscript{41}

The concept of "payment by results" which the stock ownership incentive plan fostered was carried on throughout the Philco organization. Factory workers (in the days before unionization) were paid on a piecework basis. Salesmen were paid on a commission basis readjusted each year by common consent. Even individual dealers had to sell their quota in order to retain the valuable Philco franchise.

1932 - The Depth of the Depression

For 1932, Philco continued the successful marketing and operational strategies that had worked so successfully in 1931. But due to economic and industry conditions which prevailed in 1932, even Philco's dynamic management team couldn't prevent a rather severe reduction in output and profits.

Philco's advertising plans for 1932 were quite ambitious. $900,000 was appropriated for magazine advertising with $350,000 more allocated for broadcast and newspaper advertising.\textsuperscript{42} In 1932, Philco instituted its long time policy of showing mainly the high-priced models in magazine
advertising to establish an image, then pushing the price leaders in newspaper advertising to get the customer into the dealer's store. Philco's magazine advertising in 1932 usually featured an eleven-tube console priced at $150.00 and stated "PHILCO - A Musical Instrument of Quality".

Philco emphasized tone quality in these ads, and in this area, they were ahead of nearly all their competition. To Philco should go the credit for introducing the concept of High Fidelity to the American public. In January, 1932, Philco introduced the revolutionary (for the time) Model 112 X. The X in Philco's numbering scheme signified an inclined sounding board deluxe console with an "echo absorbing" screen at the back of the cabinet. The idea behind the inclined sounding board was based on the principle that high-frequency sound waves are very directional. By sloping the front of the console and inclining the speaker up towards the listener, Philco claimed that more high frequencies were heard. In addition, low-frequency response was reinforced by the larger sounding board, the echo absorbing screen and an improved output stage. The 112 X was Philco's first attempt at high-fidelity - a theme they would stress even more heavily over the next several years.

In order to enhance the successful selling - up strategy begun in 1931, Philco further proliferated its model line for 1932-33 by introducing twenty-six new models at the June Trade Show. These models ranged from the four-tube Model 80 B midget at $18.75 to the imposing eleven-tube, dual speaker Model 15 DX at $250.00. That $18.75 midget bothered Jim Skinner. He had felt that $36.50 was as low a price as any set should sell for, but in response to competition, Philco had introduced this model hoping to use it only as a price leader. But in August, 1932, the Emerson Radio & Phonograph Company of New York introduced a tiny AC-DC, transformerless $25.00 radio called the pee-wee which immediately caught the public's fancy. By the end of 1932, pee-wee radios were selling for as little as $9.95. Although Philco refused to market a set at less than $18.75, Skinner was nevertheless sickened
when sales of the Model 80 B took off. During the last week of 1932, Philco sold 17,000 80 B's - half of its entire sales for the week!\textsuperscript{43} When the results for 1932 were totalled, Philco's sales had dropped to 609,000\textsuperscript{44} units out of an industry total of 3,000,000\textsuperscript{45} sets - only about 2/3 of its 1931 volume. But worse still, Philco's dollar volume was down fifty percent to $17,000,000\textsuperscript{46}. Philco was still in first place, but it is almost certain that they operated at a loss for 1932.

The trade journals lamented that the pee-wee radio had ruined the industry. Between December 1, 1932 and May 1, 1933, it was estimated that of the 500,000 sets that the industry sold, 300,000 were pee-wees.\textsuperscript{47} Most manufacturers were having trouble meeting fixed costs on their plants. As \textit{Fortune} put it in June, 1933: "The baby radio has grown so fast its own mother hardly recognizes it. And she isn't sure she wants to either."\textsuperscript{48}

With the industry in such a state, it is not surprising that Philco in 1932 devised an ingenious system for reducing the patent royalties it paid to RCA. Although the royalty fee had been reduced to five percent of the net selling price in 1932, Philco still found this rate excessive. To further reduce the royalty charges, the firm split itself into two companies; the Philadelphia Storage Battery Company, a manufacturing concern, and the Philco Radio and Television Corporation, an engineering and selling company.\textsuperscript{49} In reality, the split was made in name only since both "new firms" were located in the same old building and had the same officers. The Philadelphia Storage Battery Company manufactured the chassis. It then sold the chassis to the sales organization, the Philco Radio and Television Corporation, which added cabinets, knobs, dials and packaging. Routine production engineering was charged to the Storage Battery Company while developmental engineering was charged to the Philco Radio and Television Corporation.\textsuperscript{50} Royalty fees were based on the price which the Philadelphia Storage Battery Company charged the Philco Radio and Television Corporation for the receiver chassis! Because of this scheme, RCA tried to cancel
Philco's license in 1934 so Philco filed suit.

Philco justified its actions by claiming that it had to meet competitors, such as Colonial, who sold radios in huge quantities to Sears Roebuck and Company at a price that just covered manufacturing costs. Colonial did no advertising and little advanced engineering work and, thus, paid lower royalties than Philco. By the time the case was decided, in Philco's favor, in 1939, the excess royalties which RCA had collected amounted to $750,000.

The word "television" in the name of Philco's sales organization was no idle boast. During the summer of 1931, Philco had retained the services of the talented young television inventor, Philo T. Farnsworth. Farnsworth was one of the pioneers (along with RCA's Zworykin) in developing all electronic television. On June 28, 1932, Philco was granted experimental television license W3XE, for one of the first all-electronic television stations in the country. The war with RCA was escalating.

Before the year 1932 was out, one more important event rocked the radio industry - the breaking up of the unholy alliance that formed RCA. On May 13, 1930, the government had brought an anti-trust suit against RCA, GE, Westinghouse and AT&T. After two years of negotiations, RCA signed a consent decree in November, 1932, which essentially forced GE and Westinghouse to divest themselves of their RCA stock. The net result of this was the streamlining of the RCA organization; a change which would allow RCA to be more competitive in the future. (RCA had eliminated its dependence on GE and Westinghouse for radio production when it acquired the Camden, New Jersey, facilities of the Victor Talking Machine Company in 1929.)

By late 1932, conditions in the industry had degenerated to the point where Philco's competitors, needing a scapegoat, renewed their attack on the firm claiming that the Philco pricing policies were responsible for the situation in which the industry found itself. On December 21, 1932, Jim Skinner sent a four-page letter to Philco distributors justifying
Philco's pricing policies. Some excerpts from this letter follow:

"The radio price situation is undoubtedly bad. Our competitors accuse Philco of creating this situation which isn't true. There have always been and there probably always will be radios selling below Philco. RCA royalty figures prove this. Every year the average selling price of Philco sets has been above the average selling price of all radio sets paying RCA royalty.

'We have been fairly successful in producing better radios at prices near enough those of the competition to capture a good share of the market. We have never led the price cutting; but have always defended our leadership against the price cutting of others, gyps or otherwise. At the same time, we have, year after year, successfully merchandised "selling-up" models offering real value and greater profits ...

"To defend its leadership, Philco is producing today radios in the low price field which meet all comers, but Philco does not believe and never has believed that the ultimate goal of radio is a $9.95 midget. Philco believes and always has believed that the public will buy a radio as a musical instrument, at prices which will give them value for every dollar they pay, and still enable dealer, distributor and factory to make a fair profit ...

"It was probably inevitable that the radio price war should occur. If it had to occur it was probably better it should go all the way to the bottom so that no doubt would be left in any dealer's mind that only losses lay along that path. "But now, from the standpoint of self-preservation, the time has come when thoughtful dealers must ally themselves with some strong manufacturer who has the reputation, ability and courage to give them the kind of merchandise and the kind of advertising which will help return a profit to the dealer's pocket."54
1933 - Turnaround
The radio industry price war reached its bottom in early 1933. At that time, even the staid Radio Corporation of America introduced a four-tube cigar-box pee-pee for $12.95. But by mid-1933, sales began to improve as the radio public rediscovered an interest they thought they had outgrown eight years earlier - the thrill of distant reception. But this time, the thrill came not in receiving Los Angeles from the east coast, but in listening to broadcasts from London, Paris or Berlin on short-wave.

Philco and other manufacturers had introduced all-wave (a receiver tuning from the broadcast band to about 20 Mhz) receivers in mid-1932, but wide spread interest in short-wave reception did not catch on until 1933. Of the thirty-nine new models which Philco introduced for the 1933-34 season at the June RMA Trade Show, eight could be classified as all-wave and nearly all other models had a second band with some short-wave capability. Philco also gave in and introduced a cigar-box pee-pee but priced it at $20.00. During the price war, Philco never sold a set below $18.75. At the top of the line was the Model 16, an eleven-tube all-wave receiver housed in several different cabinet styles. With the Model 16, Philco significantly advanced the state of the art in high-fidelity receivers. As Philco put it, the 16 was designed to "bring music back to radio". Quickly the $175.00 16X console became a strong seller, but not for the reason Philco had expected. The public was buying the 16X because of its superior short-wave performance, not because of its fidelity!

This didn't bother Skinner who was pleased that expensive radios were selling again. And, it didn't deter Philco from its campaign for high fidelity. Philco magazine advertisements continued to stress the musical qualities of the 16X and Philco continued to pay $100,000 to $150,000 per year to sponsor fine music broadcasts such as the Philadelphia Orchestra. Skinner's reason for this: "the more the public appreciates good music and good programs, the bigger and better radios they will buy and the more money there is to be made in the radio set business."55
During 1933, competition was building in the radio industry. In order to survive, other manufacturers were acquiring Philco's successful strategies. Zenith, for example, had introduced its 1933-34 "Challenger" line which competed with Philco on an almost model-for-model basis. There was no question about whom Zenith was challenging! This was Zenith's first year in the popularly priced market - a market which Zenith entered to stem the losses it had accumulated during the first few years of the depression. With a sales and advertising campaign nearly as aggressive as Philco's, Zenith sales shot from nowhere in 1932 to second place in the industry by 1938. RCA, too, with its streamlined organizational structure was staging renewed attempts at the number one position.

But 1933 also saw the demise of one of Philco's chief competitors. By November, 1933, the ailing Grigsby-Grunow Company was in receivership. As sales contracted during the depression, Majestic's high fixed costs created severe cash flow problems for the Chicago firm. In the end, Philco's plan of moving into the industry slowly but steadily had proven to be the wiser of the two entry schemes. For even by 1933, Philco did not yet own plant capacity equal to what Majestic had started with in 1928.

Sales results for 1933 showed that the industry was beginning to recover from the dark days of 1932. Industry volume had risen by twenty-seven percent to 3,806,000 while dollar sales were up twenty-nine percent to $180,500,000. Philco sales rose fifty-eight percent to 963,000 while dollar sales rose only thirty-five percent to $23,000,000. Philco had begun its recovery more quickly than the industry as a whole, but there was no mistaking the fact that the cheap set was still very much in evidence. Average set price for the industry had fallen to $35.00 in 1933 from its 1929 high of $133.00.

1934 - Recovery
During 1934, Philco sales rebounded with force earning the firm the largest industry penetration it would ever attain. In 1934, Philco sold
1,250,000\textsuperscript{62} sets out of the industry total of 4,084,000\textsuperscript{63} for a penetration of 30.6 percent. Nearly one in every three receivers produced in 1934 carried the PHILCO trademark. Additionally, 1934 was the first year when Philco broke the elusive million set mark. Philco dollar volume rose handsomely too in 1934, up 43.5 percent to $33,000,000\textsuperscript{64} for not only was Philco selling more sets, it was selling more expensive models as well. The public had decided that it wanted both good tone and short-wave reception, and $100.00 consoles were now outselling cheaper consoles by two to one.\textsuperscript{65} Philco's quality advertising theme of the past three years was paying off as Philco firmly established itself as the "big set" producer of the depression.

Philco annoyed the industry once more in June of 1934 when it introduced a staggering line of forty-nine new models for 1934-35 headed by the High-Fidelity Model 200-X. The Model 200-X was the first true high-fidelity receiver (by modern standards) to be introduced by any manufacturer. It incorporated such advanced features as an enclosed speaker chamber, high frequency sound diffuser, fifteen watt super Class A output stage and variable selectivity. Its high frequency response was flat out to 7500 Hz (previously 4000 Hz was considered good) and for the first time, live broadcasts sounded almost real. The industry was upset by this receiver because they had previously met and decided (except for Mr. Skinner) to delay production of high-fidelity sets until 1935 or 1936 because of some problems inherent with high-fidelity set design.\textsuperscript{66} The chief problem was the fact that as fidelity or bandwidth was increased, selectivity (the ability of a receiver to receive a weak distant signal sandwiched between two powerful locals) was decreased. All manufacturers realized that some means of varying the bandwidth of the IF amplifier was necessary, but Philco, with the help of the Hazeltine Labs, was the first to discover an economical method to accomplish this. Thus, Philco had a one-year jump on the rest of the industry!
To demonstrate the advantages of this new set, Philco hired operatic star, Lucrezia Bori, and centered much of its 1934-35 advertising campaign around this one model. Due to its high price ($200.00), the 200-X was not a big seller, but its halo-effect on the rest of the Philco line was indisputable. People flocked to dealer showrooms to have a look at the 200-X and frequently walked out with a lesser set in the Philco line. Philco was now practicing "selling-up" on the low end and "selling-down" on the high end!

Throughout the early 1930's, Philco had spent a considerable amount of money in cultivating its distributor network. Each year the distributors were taken on a cruise in May for a preview of the next season's new models which would be introduced at the June Trade Show. The distributors would then go home and give a similar sales pitch to their dealers. Each year the distributor's cruise grew more elaborate. On May 15, 1934, 700 Philco distributors and their guests, accompanied by the top Philco executives, departed for the West Indies on the Philco chartered liner "The Queen of Bermuda". Nightclub entertainment was provided and during the cruise, Philco even announced that it was instituting advertising on short-wave station EAQ, Madrid, Spain, a popular station among U.S. short-wave listeners. These cruises were expensive for Philco, but they paid off handsomely. During the 1934 cruise, distributors placed orders for nearly 500,000 Philco receivers to be delivered over the next three months.67

In its February, 1935, issue, Fortune estimated the unit sales of the top radio manufacturers in 1934 and ranked them in order:68

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Units</th>
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<tbody>
<tr>
<td>Philco</td>
<td>1,250,000</td>
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<tr>
<td>RCA</td>
<td>500,000</td>
</tr>
<tr>
<td>Crosley</td>
<td>300,000</td>
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<tr>
<td>General Household Utilities (mostly auto)</td>
<td>300,000</td>
</tr>
<tr>
<td>Colonial (Sears Roebuck &amp; Company)</td>
<td>300,000</td>
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<tr>
<td>Wells-Gardner (Montgomery-Ward)</td>
<td>200,000</td>
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<tr>
<td>Emerson (mostly midget)</td>
<td>200,000</td>
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<tr>
<td>GE (manufactured by RCA)</td>
<td>200,000</td>
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<tr>
<td>Atwater Kent</td>
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<tr>
<td>Zenith</td>
<td>100,000</td>
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<tr>
<td>Bosch</td>
<td>Total accounted for 3,550,000 units</td>
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</table>
As can be seen from this table, Philco far outpaced its competition. Mr. Skinner's strategies certainly were working!

In this same issue, Fortune gave an enlightening view of James M. Skinner: "In the radio business, he resembles Mr. Kipling's wild cat that walks by its wild lone. His more cooperatively minded rivals resent this solitary attitude, but there does not, in the final analysis, seem to be anything more fiendish in his methods than the ability to turn out radios at costs below the industry's general level. His is the type of corporation that is accused of uneconomic competition, but to rebut that Mr. Skinner can use if he chooses the answer that competition is not uneconomic unless it is carried on at a loss. And there is something about Mr. Skinner that makes it a drain on the imagination to think of his competing at a loss." 69

1935 - Competition Increases

Nineteen Thirty-Five was a prosperous year for the radio industry. Sales for the year were up 47.5 percent totaling 6,026,800 70 units. Dollar sales increased impressively too, rising fifty-four percent to $330,192,480.71 Unit sales broke the previous record set in 1929. (These figures do not, however, indicate that average unit price increased since after 1934, industry dollar sales figures included the value of the tubes in the receivers.) Nineteen thirty-five was also significant in that it was the first year in which auto radio sales topped one million units. 72

Philco, in 1935, continued its successful strategies of the past few years. Its receiver sales broke the 1934 record amounting to about 1,500,000 (est) units, but industry penetration had dropped to about twenty-five percent due to increased competition particularly from RCA, Zenith and General Electric (who began making its own sets in 1935). Dollar sales, however, rose to $46,740,000 73 and after tax profits, rose twenty-one percent from $1,941,000 74 in 1934 to $2,348,000 75 in 1935. Philco was also selling about 1/3 of all the auto radios sold with an even greater penetration in the OEM market.
The year had gone so well that Philco paid its factory workers a Christmas bonus.76

At new model introduction time, Philco got itself into a heated argument with the rest of the industry (except for Zenith) concerning the new metal tubes which had been developed by GE and introduced by RCA. During the thirties, Philco's engineers were developing a reputation for shunning meaningless technical changes. In 1931, they had refused to switch to variable-mu tubes until the characteristics of these new tubes had stabilized. In 1932, they bucked an industry trend to a new series of 2.5 volt tubes, introducing instead, their own line of 6.3 volt tubes which were also usable in auto radios (Philco's 6.3 volt line eventually was adopted by the industry). In 1933, Philco resisted the trend to Class B audio output stages which provided higher efficiency at the cost of higher distortion.

Metal tubes had been developed by GE, merely to give them something to talk about in their all new 1935-36 radio line. Metal tubes provided no real advantages over glass tubes, and they had significant disadvantages in cost and for high-frequency operation. But the radio industry in 1935 was anxious for something new to advertise (real technical innovations were slowing down) so they flocked to the metal tube coining catchy names for their metal tube-equipped receivers such as "Ferrodyne". Philco, however, stuck by the old glass tube claiming superior performance for Philco receivers due to the larger number of glass tube types from which to select. Once again, Philco was correct. Within three years, the metal tube had begun to disappear from new receivers.

1936 - Profits Dip
During 1936, Philco again set new records in unit sales and dollar sales, but after tax profits took a serious dip. Philco unit sales reached 1,900,000 and dollar sales rose to $56,675,00077, but after tax profits fell sixty-five percent to $833,00078 with no change in the corporate tax rate. The reason for this drop in earnings is not clear. Could it
be that buyers shunned Philco's high-line models because they lacked metal tubes?

On average, 1936 was a good year for the industry. Sales for the year totalled 8,248,000⁷⁹ sets worth $450,000,000.⁸⁰ Both figures were up sharply from 1935. Due to mounting competition, particularly from Zenith, whose "big black dial" sets had caught the public's fancy, Philco's industry penetration dropped to twenty-three percent, down two percentage points from 1935.

Philco's battle with RCA escalated further in August, 1936, with a suit by Philco which seems almost comical. According to the August 17, 1936, issue of TIME: "Charging that RCAgents had secretly wined and dined young Philco female employees, involving them in 'compromising situations to induce them to furnish confidential information, documents and designs', irate Philco sought to enjoin and restrain RCA from using 'devious methods' of trade rivalry. Philco demanded the return of allegedly stolen secrets, a settlement for 'substantial expense and damage in endeavoring to protect its business and property from RCA depredations'.

"Unable to name the weak and treacherous employees, RCA is supposed to have seduced, and unwilling to specify what 'secrets' had been purloined, Philco nevertheless wailed: 'It has required the greatest skill, invention, vigilance and effort successfully to develop and maintain such a business in the face of its highly competitive nature ... and particularly by the competition of RCA ... by reason of its financial power and patent monopoly.' By underhanded acts, complained Philco, RCA 'is seeking further to extend and strengthen its domination and control of said industry'."⁸¹

RCA claimed there was "no foundation whatsoever for the charges" and denied them completely.
1937 - Recession
Mounting labor problems and a general business recession caused Philco to register a small loss in 1937. Receiver sales in the industry dropped two percent to 8,064,780 units while dollar sales stayed even at $450,000,000 Philco sales, however, dropped back to 1,550,000 units causing its industry penetration to decline by four percentage points to nineteen percent. Dollar sales declined only slightly to $51,904,000 indicating healthy sales of larger sets but a loss of $110,000 was registered for the year's operations. Despite all of this, however, Philco retained its position as industry sales leader for the eighth year in a row, and in December, 1937, produced its ten millionth radio, a Model 38-116XX.

Philco's poor earnings performance in 1937 can be largely attributed to labor problems which began to plague the company in the second half of the year. Philco had signed a contract with the United Electrical, Radio and Machine Workers, C.I.O., in 1933. An attempt had been made to unionize the Atwater Kent Manufacturing Company, Philco's Philadelphia neighbor, at the same time. A. Atwater Kent, a self-made business man, told the unions to leave and not come back. If they returned, he threatened, he would close down his plant for good.

The labor unions staged a new campaign on the Philadelphia-Camden radio manufacturers in 1936-38. In early June, 1936, the unions made another attempt to organize the workers at the Atwater Kent Manufacturing Company. True to his word, A. Atwater Kent closed his business for good. The unionization attempt wasn't the only reason for the closing, however. Atwater Kent was down to 100 employees at the time of the closing. Kent had chosen not to compete with the more aggressive companies like Philco, and at this point, he felt it was time to get out of the radio business entirely.

June, 1936, also saw the beginning of a six-week strike at the RCA-Victor plant in Camden. Philco was spared from a major strike until
1938, but by late 1937, minor work stoppages were interfering with the 1937-38 model year launch. Philco had spent a good deal of money advertising its new receivers with slanting control panels which it had dubbed 'No Squat, No Stoop, No Squint', but it was having trouble maintaining a steady supply to meet the demand. To make matters worse, a business recession began in August, 1937, and continued into 1938.
B. **Strategic Analysis 1928-1937**

During the period 1928-1937, Philco was undoubtedly the success story of the industry. From near oblivion in early 1928, Philco went on to capture the number one sales position in the industry by 1930. Furthermore, Philco was to retain its title of radio sales leader in every year of civilian radio production from 1930 until 1961 when the Ford Motor Company acquired Philco. The fact that Philco attained its position of leadership during the worst depression this nation has ever known makes Philco's performance in this era even more remarkable.

But this superb performance was no accident nor just due to luck. In order to gain a clearer picture of the reasons behind Philco's success in this era, the areas of management style, production strategy, product strategy, marketing strategy and distribution strategy will be studied in detail.

**Management Style**

Philco's management team was probably its most important asset during this period. Organized functionally, the firm was guided by a strong and able leader, James M. Skinner, who had a keen sense for business and the ability to surround himself with able advisors. Philco's management team, under Skinner, could best be described as small, aggressive, and quick on its feet. Due to the fact that the company was privately held, with nearly all stock owned by Philco executives, Skinner's team of fifty men were all motivated to work towards a common goal - profits which could be paid out as dividends.

Philco's management had a clear idea of where the firm was headed. Product, marketing and sales policies evolved logically. Constant vigilance was kept over all areas of the business - never was any area of Philco allowed to run wild.

The net result was a company whose management thoroughly understood the industry, their company and each other and, thus, could correctly and
swiftly make the numerous decisions that were necessary to keep Philco at the top.

Production Strategy
Philco's production strategy was one of low costs, high volume, modern facilities, even production, low overhead and constant control. In order to prevent overcapacity and high overhead, Philco added to its production facilities only when absolutely necessary. Throughout the organization, only the most modern production techniques were used. By converting its factory to mass production in 1929, Philco was able to slash production costs and, thus, offer more radio for less money. In the highly competitive radio market, this technique was of crucial importance.

Philco's production control system was also a key contributor to the firm's success. While most radio manufacturers produced in spurts, Philco set up a weekly reporting system whereby distributors reported their prior weeks activity to Philco management each Monday morning. With this information, management was able to schedule production logically and, thus, avoid the heavy overstocks which plagued other radio manufacturers.

Product Strategy
Philco's product strategy was centered around offering the buying public the highest possible performance at the lowest possible cost. During 1928 and 1929, Philco had stressed product quality. Once the desired reputation for quality was achieved, however, the next objective was to build volume, thereby lowering unit cost. Because of its ultra-modern production facilities, Philco's overhead was among the lowest in the industry. As volume increased, Philco was able to continually lower prices (thereby setting up a competitive barrier), yet the firm maintained its profits through volume.

By 1931, due to the volume Philco had achieved, the competition found it
impossible to match Philco's value for the dollar. At this point, Philco began to emphasize styling and performance and began to down-play quality of construction. While RCA and Atwater Kent receivers were built to last for fifty years, Philco adopted a more "light duty" approach to chassis construction. Philco engineering was second to none, however. And Philco's cabinet styling, often the work of leading industrial designers, paced the industry.

In order to augment its "selling-up" approach to sales, Philco adopted the philosophy that Alfred P. Sloan, Jr. had introduced at General Motors - "a model for every purse and purpose". Philco models covered the price spectrum from $20 to $200 or higher. Most importantly, in each price range, Philco offered a level of performance that the competition could not match.

Throughout the 1930's, Philco championed the concept of high fidelity. While other manufacturers emphasized power output and heavy bass response, Philco went after low distortion and wide frequency response. Jim Skinner was certain that if the musical quality of his products was emphasized, sales of the larger, more profitable radios would increase.

Lastly, Philco had a superb talent for introducing products that were right for the times. The introduction of the Philco Baby Grand in 1930 is probably the best example of this talent. While other manufacturers looked down on the midget receiver as simply a cheap radio with low profits, Philco saw it as a sales builder, a set which could perform the dual function of opening up a new lower strata of radio buyers while at the same time serving as the price leading basis of their clever "selling-up" strategy. Philco's goal was to always remain one jump ahead of the competition.

**Marketing Strategy**
Philco's marketing strategy during this period was brilliant. As far back as 1919, Jim Skinner had been a firm believer in heavy and consistent
advertising. During the depression, when most radio manufacturers cut back on or eliminated their advertising, Philco increased its ad budget. Furthermore, Philco tied its advertising to its clever "selling-up" scheme. Philco's national magazine advertising showed top of the line models and stressed the quality and fidelity of Philco "instruments" - pure image building. In its local newspaper advertising, Philco got down to earth and stressed its rock bottom price leaders which lured prospects into the dealers' stores. Once the prospect was in the store, the "selling-up" process began. The salesman was instructed to show the customer the price leader, then to demonstrate how much more enjoyment he could derive from a "step-up" model priced just a few dollars higher. More often than not, the prospect was sold a much more expensive radio. Philco's entire line-up was designed and priced to facilitate this "selling-up" process.

The system could also work in reverse. Often a customer would come in just to see the top of the line model which he could in no way afford. In this case, the salesman was instructed to show the prospect the number of top-of-the-line features that were embodied in Philco's more moderately priced sets. The net result of this scheme was that while Philco's competitors were barely meeting fixed costs by selling small sets, Philco was selling a huge number of medium-priced consoles. As Fortune put it, Philco "took only as much milk as it had to in order to swallow the cream". Philco's consistent advertising program coupled with the ingenious "selling-up" scheme did much to ensure the firm's success in the 1930's.

**Distribution Strategy**

Of course Philco's fine products, superb advertising program and "selling-up" plan would not have been very effective without a solid sales organization. Ever since the storage battery days, Philco had taken great pains to build a comprehensive and satisfied distribution and sales network.
Philco was truly concerned over the welfare of its distributors and dealers, for this policy was in Philco's best interests. By assuring dealers that it wouldn't compete with them by dumping surplus stock in the early depression years, Philco picked up the cream of the nation's radio dealers. During this period, the Philco line was clearly the safest, most profitable radio line a dealer could handle. By 1932, so many dealers wanted the Philco franchise that Philco was able to pick and choose among them.

Philco further ensured a strong sales organization by offering its distributors and dealers attractive sales incentives, and by backing them with merchandising techniques, sales aids and the most aggressive advertising campaign in the industry.

Conclusion
Thus, it is clear that Philco's success in the 1928-1937 period was due to an innovative but integrated strategy. Philco's executive stock ownership plan attracted and kept a high-quality management team and motivated them towards the common goal of profits. This team designed a clever production and control strategy which kept manufacturing costs low, thus, allowing Philco to offer the public more value for its money. Philco's product strategy and aggressive advertising campaign were tailored to augment the "selling-up" scheme which Philco used to move expensive sets when the competition could only sell midgets. The volume that was achieved, as well as Philco's tight production control program, allowed Philco to attract and keep the best radio dealers in the country. It was a well thought out, carefully honed strategy.

Unfortunately, by the late 1930's, the radio market was changing. Philco's competition was getting smarter and the market was saturating. These changes required modifications to Philco's strategy. In the next section, Philco's response to this changing environment will be examined.
IV. Transformation 1938-1950

A. Historical Review

Between the years 1938 and 1950, Philco transformed itself from a privately held $50 million business specializing in the manufacture of radio receivers to a diversified $300 million business with products in the home entertainment, appliance and military electronics fields. In this section, I will describe how this transformation took place as a response to competitive pressures, economic conditions, market changes and technological advancements.

1938 - Strike and Beginnings of Diversification

Nineteen Thirty-Eight was to prove one of the most difficult yet important years in Philco's history. In response to pressure from competition, Philco had brought out a new line of inexpensive receivers which it named "Transitone". With these, Philco was hoping to regain some of the market share it was losing to RCA and Zenith. In the three year period 1934-1937, Philco unit sales had risen nineteen percent. But over the same period, RCA sales had risen by forty-five percent\(^1\) and Zenith (who in this period had risen from ninth to third place) had staged an amazing 243 percent\(^2\) increase in sales. Due to the business recession which started in August, 1937, most analysts predicted an industry production of only 6,000,000 receivers in 1938. But Philco had so much confidence in its new Transitone line, and in the regular line it was readying for the 1938-1939 season, that it scheduled its 1938 production at 1,500,000\(^3\) receivers, enough to boost its projected market share to twenty-five percent.

But these plans were not to be. On May 1, 1938, Philco employees went out on strike, asking for substantial concessions on wages and hours. The strike lasted until early September and full operations were not in
effect until January, 1939. During the strike, Philco farmed out production to subcontractors, such as Motorola, but ended 1938 by selling only 1,000,000 sets for $30,527,665. That year, Philco lost $222,477. Total industry sales were 6,000,000 units, as predicted, thus, Philco's market share dropped back to 16.6 percent. This was Philco's worst performance since 1933.

In order to settle the strike, Philco was forced to give in to most of the union's demands. But as Fortune put it, "by winning the battle", the union "lost the war". Before the strike, Philco had prided itself on the fact that most components which made up a Philco receiver were made in Philco plants. Peak employment in the radio division (Philco still made storage batteries) was 12,000 workers. But when the strike settlement turned labor into a liability, "Philco moved fast, appeared unpreoccupied with whatever were the morals of the case, and got rid of as many men as it could". After the strike, Philco began buying as many components from outside suppliers as was possible. Thus, by 1941, Philco's labor force was down to only 5,000 despite record radio sales that year.

The 1938-39 line, on which Philco had hoped to base its sales recovery, was introduced in June, 1938, in spite of the strike. Most models were entirely new and were styled in sharp contrast to Philco receivers of the past. Philco's innovation for the year was "Mystery Control", a device which allowed the user to remotely change stations or adjust volume from a wireless control box. Philco played up "Mystery Control" in its advertising, and a Philco receiver equipped with this device even starred in the 1939 movie, "Topper Takes a Trip". As with top of the line models of the past, the chief purpose of Mystery Control was to lure customers into Philco dealers' stores where, hopefully, they would make some kind of purchase.

Other than the recession, the chief concern in the radio industry during 1938 was saturation. By 1938, eighty-seven percent of families in America owned radio receivers. Of course, replacements still made
up a large portion of new radio sales (sixty percent in 1937)\textsuperscript{16}, but the industry was quickly coming to the realization that in order for the radio market to continue to grow, families would have to be convinced that they needed more than one radio, and this meant that most future growth would come in the form of small, low priced "2nd" or "3rd" radios. Statistics for the year already showed that this shift was taking place. The average unit price had dropped to just $35.00\textsuperscript{17} in 1938 from $56.00\textsuperscript{18} the year before. This led a number of radio manufacturers to consider diversification into more profitable lines.

The most logical avenue of diversification for the radio industry seemed to be refrigeration. As early as 1931, radio dealers had taken on electric refrigerator lines to supplement slow radio sales in the spring and summer. By 1933, several radio manufacturers had added refrigerators to their line.

Refrigerators provided an almost perfect form of diversification for the radio manufacturer. Peak radio sales occurred in the months September through January, peaking around Christmas. Sales fell sharply in February through April and were almost non-existent during the summer (due to high levels of atmospheric static and increased outdoor activities). Refrigerator sales, on the other hand, were strongest during the spring and summer. In addition, refrigerators could be sold through existing channels of distribution.

Philco resisted diversification longer than most of its competition, but by 1938 it decided that it could hold out no longer. That June it signed an agreement with the York Ice Machinery Company for York to manufacture a line of portable room air-conditioners to be sold under the "York-Cool Wave" brand. A price leader model was designed to sell for $150.00.\textsuperscript{19} Soon Philco would become the leading marketer of air-conditioners.
In November, 1938, Philco bought the entire refrigerator Division of Fairbanks-Morse & Company, including current stock, work in process and the patented "Conservador" feature. During this first year in the refrigerator business, Philco asked its dealers to handle the Fairbanks-Morse Conservadors to gain experience in selling refrigerators. They sold 35,000 units for $3,300,000. But the big splash into the refrigerator market would not come until 1939.

1939 - "Philco All Year Round"

During 1939, the radio industry recovered quickly from the 1937-38 recession with receiver sales climbing seventy-five percent to 10,500,000 units. Dollar sales rose sharply too, up sixty-eight percent to $354,000,000. Philco sales gained as well, up fifty percent to 1,500,000 units (est), but, once again, Philco lost market penetration enjoying only fourteen percent of the nation's radio sales. Nevertheless, this was enough to earn Philco the top industry sales position for the tenth consecutive year. Dollar sales rose to $45,421,078 with before tax earnings comprising 5.35 percent of sales.

Philco's advertising slogan for the year was "Philco All Year Round", which signified year round profits for Philco dealers thanks to the York air-conditioners and Fairbanks-Morse refrigerators they would be selling. During January, the Philco Refrigerator Company was formed as a wholly owned subsidiary to take over all assets of the old Fairbanks-Morse refrigerator division. But at Philco's Mid-Winter Convention in February, Vice President, Sayre Ramsdell, was careful to point out, "radio is still Philco's basic business and will continue to be ... And when we mention radio, we include television which is, after all, an allied branch of the same industry."

In conjunction with several other manufacturers, Philco introduced its first television receivers in May, 1939. Initially available in two models, 10TK, a vertical kinescope, mirror-type console and 6TC,
video-only table model which had to be plugged into a radio to receive sound, these receivers closely resembled the RCA television receivers which were introduced at the same time. Of course, as with the RCA receivers, production was extremely limited since only a handful of television stations were on the air, and these were almost all located in the New York - Philadelphia area.

Also in May, long-time Philco President, James M. Skinner, was elevated to the post of Chairman of the Board. Treasurer, James T. Buckley, was elected President, retaining his post as Treasurer. Apparently, Skinner was no longer able to exercise the control over the company which he was used to since he left before the end of the year after what Business Week (many years later) termed "a policy tiff". (Although in its contemporary report, Business Week listed "ill health" as the reason for Skinner's departure.) The management team that remained, however, had been largely cultivated by Skinner and, thus, retained the basic Skinner style of aggressive advertising and hard-hitting promotional activities for the next few years.

Spring, 1939, brought a welcome bit of news for Philco as well. In May, the Delaware Supreme Court upheld a lower court ruling which restrained RCA from terminating Philco's license and forced RCA to pay Philco $750,000 in excess royalties. According to Fortune, settlement of the long running case opened the door for Philco to revamp its corporate structure. Philco no longer needed the dual structure which had been set up as a means to reduce royalty payments to RCA. At this time, also, several of Philco's higher executives felt that it was time to issue stock to the public. This may very well be the policy issue which led to the departure of Jim Skinner, who at the time he left Philco, was the firm's largest stockholder.

1940 - Philco Goes Public
The most significant event of 1940, for Philco, was its management's decision to consolidate the Philadelphia Storage Battery Company and the Philco Radio & Television Corporation into the Philco Corporation, and
to issue stock to the public. In July, 1940, the reorganization took place. The existing $100 par stock was split 33-1/3 to 1 and was issued at $15 with a par of $3. A total of 1,221,100 shares were sold by the company and by the officers out of their personal holdings. The stock was immediately listed on the New York Stock Exchange. The question everyone was asking, however, was if the new organization would have the stamina to carry on the aggressive marketing tactics that had moved Philco into the radio industry's number one sales spot and had kept it there for ten consecutive years.

Nineteen Forty proved eventful for Philco in other ways as well. In June, a controlling interest in the National Union Radio Corporation, a maker of vacuum tubes, was purchased to "protect Philco's supply of tubes and to enable it to participate more actively in this field". In November, the fifteen millionth Philco radio receiver was produced occasioning a nationwide "15 Millionth Philco Jubilee". On December 23, Philco became the first manufacturer in the history of the industry to manufacture two million radio receivers in one year. Of course, Philco retained the number one sales position for the eleventh consecutive year.

The entire radio industry had enjoyed healthy sales in 1940. Industry production was up twelve percent to 11,800,000 units. Dollar sales rose twenty-seven percent to $450,000,000. Philco sales rose by thirty-three percent increasing market share to seventeen percent. This is in conjunction with the sale of 89,000 refrigerators (now under the Philco brand) for $7,800,000 boosted Philco's 1940 dollar sales to $52,311,131. Before tax earnings, as a percentage of sales increased to 6.87 percent; a definite improvement over 1939.

1941 - New Records
In this, the last full year of civilian production, both Philco and the radio industry continued to break records. Industry sales rose ten percent to 13,000,000 units while industry dollar sales rose only two percent to $460,000,000 indicating a continued trend toward smaller
receivers. Philco sales rose only five percent to 2,100,000\(^44\) (enough to lead the industry for the twelfth consecutive year), but dollar sales increased forty-seven percent to $77,073,636\(^45\) indicating that refrigerators, air-conditioners, vacuum tubes, batteries and military contracts were contributing an increased share to Philco's total business.

Table 4-1 below shows the division of Philco's dollar sales in 1941:

<table>
<thead>
<tr>
<th>Product</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Radios</td>
<td>47.4%</td>
</tr>
<tr>
<td>Automobile Radios</td>
<td>15.0%</td>
</tr>
<tr>
<td>Electric Refrigerators</td>
<td>23.0%</td>
</tr>
<tr>
<td>Room Air-Conditioners</td>
<td>1.8%</td>
</tr>
<tr>
<td>Misc. Sales Including</td>
<td>12.8%</td>
</tr>
<tr>
<td>Batteries, Tubes, Parts, and Military</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Before tax earnings as a percentage of sales reached eleven percent; the highest return Philco would ever receive!

Behind Philco's sales success, however, were well-honed marketing, development and sales departments. For example, in the five years 1936-1940, Philco had spent $11,000,000 on advertising.\(^47\) In 1941 alone, the advertising budget amounted to $5,000,000\(^48\) placing Philco at the top of the industry in advertising expenditure. Advertising Manager, John Gilligan, wasn't worried about spending nearly six percent of sales on advertising "because we think advertising is a commodity like light, heat or rent".\(^49\)

The earlier scheme of emphasizing quality and image in the national magazine advertising and getting down to earth to drag customers into the stores was continued. For newspaper and billboard advertising, Philco set aside two and one-half percent of sales. The distributors matched this amount. Retailers got back half their advertising costs from the distributors who got back half their expense from Philco. As
merchandising Vice President, James Carmine, said, "You can't sell two million radios without plenty of promotion and push."50

At this point, Philco was already doing market research. Through sales channels, dealers and distributors reported the public's preferences and spending habits to Philco. These findings were then relayed to Philco's 300 member research and engineering departments who translated them into products the vast middle market would buy.

Philco's Sales Department divided the country into ten sales regions, each under a division manager who would be fired if he didn't sell his quota.51 The division manager sold to about 135 distributors who then sold to 25,000 dealers. Dealers and distributors were rewarded for high sales with cruises or invitations to Philco's famous sales conventions. But Philco could get tough with its distributors too. In 1939 when Philco was launching its refrigerator line, distributors were advised to take the refrigerators or lose their radio franchise.52

In August, 1941, the vacant position of Chairman of the Board was filled when Larry E. Gubb, formerly Executive Vice President, was elected to the position which James M. Skinner had vacated nearly two years earlier.53 Other events of 1941 included construction of a new storage battery plant in Trenton, New Jersey, (in anticipation of military orders) and the commencement of production of detonating fuses for the Government. By October 20, one million fuses had been produced.54

On a more peaceful note, on September 8, 1941, Philco received commercial call letters WPTZ for its television station which had operated with experimental call letters WBXE since 1932.55 Daily programs were now being telecast to viewers in the Philadelphia area and through a relay station in Wyndmoor, Pennsylvania, a television link with New York had been established.
1942-1945 War Years
As with radios and refrigerators, Philco got into war work later than its competitors, but when it entered, it was very successful. Philco had resisted war work as long as was possible (except for the ordinance contract for fuses which was used to gain experience) in order not to get saddled down with a number of small, unprofitable contracts. It successfully declined offers to operate a shell loading facility and a steel mill. Philco wanted radar. Radar was profitable and would build Philco's knowledge in a new area of electronics. But at the start of the war, Philco's reputation was that of a radio assembler; not the high technology reputation the Government was looking for in a firm to produce sophisticated equipment like radar. But Philco had a sophisticated research and engineering department which had been working on television since 1928. It just wasn't highly publicized.

In the fall of 1941, Philco opened a Washington office and began searching for radar contracts. Soon Philco's break came. When the Government met timetable resistance from several large electronics firms on a piece of radar equipment it needed early in the war, it decided to give Philco a try. Seizing upon this opportunity, Philco made an all out effort to beat the Government's due date. The Government was so pleased with Philco's handling of this initial contract that Government orders began to pour into Philco. By early 1943, Philco had Government contracts totaling $50 million and letters of intent for $100 million more.

Now that fat radar contracts were safely in hand, Philco went after all the additional war work it could get. Philco's chassis department picked up more ordinance work. The research department worked with M.I.T. to study microwave phenomena. The cabinet division made filing cabinets. The National Union Radio Corporation was kept busy making vacuum tubes for the Government and Government orders fully occupied the storage battery department. By the end of the war, Philco was known as one of the leading producers of airborne electronics equipment. It had also produced radios for planes, ships and tanks,
walkie talkies, quartz crystals, frequency meters, projectiles for bazookas, artillery shells and fuses, cathode ray tubes, vacuum tubes and, of course, storage batteries.\textsuperscript{58} For their fine performance during the war, Philco plants received twenty-one Army-Navy E Awards.\textsuperscript{59}

One of the largest problems that faced most consumer durables manufacturers during the war was keeping their distributor and dealer networks intact. Since production of civilian radios and refrigerators had been halted in early 1942, Philco’s sales organization literally had nothing to sell. Thus, to keep its distributor and dealer network in business, Philco scoured the country to find new products made of non-critical materials that would keep the distributor network happy. As merchandising Vice President, Jim Carmine, put it, "We got them everything from cider to stockings".\textsuperscript{60} Soon, Philco dealers were making profitable business in the sale of clocks, lighting fixtures, glassware, flags, globes, blankets, paint, floor coverings, furniture, and novelties.

Carmine not only found the merchandise for his distributors and dealers, he also helped them sell it. His department designed promotional materials, store displays and sales brochures to help dealers merchandise their new wares.

During the war, several important organizational changes took place at Philco. In April, 1943, the Philco International Corporation was formed to directly handle the distribution of Philco products throughout the world.\textsuperscript{61} (Prior to this date, Philco’s exports were handled by a general trading company.) Also in April, 1943, James T. Buckley, was elevated to the new position of Chairman of the Executive Committee while another long time Philco executive, John Ballantyne, formerly Vice President in charge of Operations, was made President.\textsuperscript{62} In 1944, a profit sharing plan for key personnel was instituted to "bind the company's key personnel more closely to it".\textsuperscript{63} In its first year of operation, $747,542 was
contributed to the plan to be divided among 841 key employees.\textsuperscript{64} This program was in addition to a special compensation plan for junior executives which had been put in place in December, 1940.

Financially, the second World War proved quite beneficial for Philco. Compared to peacetime record sales in 1941 of $77,073,636, Philco's wartime peak sales, reached in 1944, were $152,933,250. Before tax earnings as a percentage of sales remained healthy at between nine and eleven percent in 1942, 1943 and 1944, but dropped back to 4.8 percent in 1945 due to heavy reconversion expenses and the cancellation of war contracts. A financial summary for the war years is found in Table 4-2 below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>Before Taxes</th>
<th>EBIT/Sales %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>$77,073,636</td>
<td>$8,481,169</td>
<td>11.00</td>
</tr>
<tr>
<td>1942</td>
<td>73,505,979</td>
<td>8,073,680</td>
<td>10.98</td>
</tr>
<tr>
<td>1943</td>
<td>135,199,527</td>
<td>13,015,419</td>
<td>9.62</td>
</tr>
<tr>
<td>1944</td>
<td>152,933,250</td>
<td>14,301,368</td>
<td>9.35</td>
</tr>
<tr>
<td>1945</td>
<td>119,129,378</td>
<td>5,716,177</td>
<td>4.80</td>
</tr>
</tbody>
</table>

So healthy was Philco's wartime financial performance that its stock during this period had a Price to Earnings ratio of 13, similar to "Blue Chip" stocks like General Electric, Eastman Kodak and DuPont.\textsuperscript{66}

With the end of the war in September, 1945, came the cancellation of Government war contracts and the expensive reconversion to civilian production. Philco's reconversion work was not as difficult as that which many other companies faced since, for the most part, it had simply converted its conveyors to worktables by putting steel covers over them.\textsuperscript{67} By November, 1945, Philco's post-war line of radios, radio-phonographs, refrigerators, freezers and home air-conditioners were shown to distributors at a convention in Atlantic City.\textsuperscript{68} In addition, Philco was making plans for a complete line of mobile radio-telephone equipment to be sold by its new Industrial Radio Division.\textsuperscript{69}
Electric home freezers were the latest addition to the Philco line continuing the diversification program which was started in 1938. In the post-war years, the Philco line would continue to grow.

1946 - Production Hampered by Material Shortages
Note: All information and financial data, from this point forward is from Philco Annual Reports, unless otherwise noted.

Philco began 1946 with hopes for a record year due to four years of pent up buying demand created by the war. Unfortunately, strikes in the plants of many of Philco's suppliers created material shortages so severe that Philco had to close down its Philadelphia radio plants for two weeks in late April, 1946. But the situation eased by June and the company recorded record fourth quarter sales of $49,132,000.

Sales for the year were $121,596,622, fifty-eight percent higher than in 1941. Net income amounted to $3,107,480, up twenty-four percent while before tax earnings were only 4.72 percent of sales. Conversion costs and material shortages had taken a healthy bite out of profits.

During 1946, Philco embarked upon its first facilities expansion program which would be completed in 1947. Construction was started on a new 500,000 square foot radio and television plant at Ontario and C Streets in Philadelphia. In addition, in January, 1946, Philco purchased from the Reconstruction Finance Corporation the former Atwater Kent Manufacturing Company plant at 4700 Wissahickon Avenue in Philadelphia. Philco planned to use this fourteen acre facility to manufacture refrigerators and freezers. One other important purchase in 1946 was that of The Lansdale Tube Company which was purchased from the Reconstruction Finance Corporation. This facility allowed Philco to sell its holdings in the National Union Radio Corporation in 1947. Capital expenditures for new plant and equipment totalled ten million in 1946. At the end of 1946, Philco owned a total of sixteen manufacturing plants with 2,700,000 square feet of floor space. When the second expansion program was completed in 1952, the company would own twenty-five plants with
5,300,000 square feet of floor space. As with Majestic in the 1930's, this expansion program was to turn into a serious liability for Philco when markets weakened in the 1950's.

Philco's diversification program also gained momentum in 1946 as growth in refrigerator, freezer and air-conditioner sales outpaced the growth in radio sales. Sales were divided as follows in 1946:

<table>
<thead>
<tr>
<th>Product Category</th>
<th>1946</th>
<th>1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home &amp; Auto Radios</td>
<td>56%</td>
<td>62%</td>
</tr>
<tr>
<td>Refrigerators, Freezers &amp; Air-Conditioners</td>
<td>25%</td>
<td>24%</td>
</tr>
<tr>
<td>Batteries, Parts, Tubes, Accessories</td>
<td>13%</td>
<td>14%</td>
</tr>
<tr>
<td>Industrial &amp; Government Business</td>
<td>6%</td>
<td></td>
</tr>
</tbody>
</table>

Up to 1946 at least, the diversification program seemed to have been a wise move for Philco.

On the product front, Philco once again led the industry not only in radio sales, but also on the number of console radios and radio-phonograph combinations sold. Philco continued its pre-war advertising campaign of emphasizing top-of-the-line models in its national advertising. Emphasized in Philco's 1946 advertising was their new Advanced FM System which was a vast improvement over the FM receivers Philco had marketed before the war. Although RCA and several other firms had introduced television receivers in 1946, Philco's first television would have to wait until 1947.

Philco spent $3,900,000 or three percent of sales on research and engineering activities in 1946. This amount would grow much more quickly than sales over the next decade. Money invested in research over the past few years had enabled Philco to build an impressive enough patent portfolio to entice former enemy RCA into a cross-licensing agreement. Philco also signed cross-licensing agreements with General Electric and Westinghouse.
1947 - Postwar Boom

With the materials shortage out of the way, Philco scored the sales success in 1947 that it had hoped for in 1946. In 1947, Philco set new records in every phase of its activities. Sales for 1947 increased eighty-six percent to $226,507,592. After tax earnings rose an amazing 210 percent to $9,630,699 while before tax earnings as a percentage of sales rose to a healthy 9.62 percent. Headed this growth was the refrigerator division which posted a 165 percent increase in dollar volume. The introduction of television receivers in April, 1947, and the production of 2.6 million radios in 1947 also contributed to this record performance.

Even with the increase in radio production for 1947, radios were making up a continually declining percentage of Philco's dollar sales as shown below:

<table>
<thead>
<tr>
<th>Product Category</th>
<th>1947</th>
<th>1946</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home &amp; Auto Radios</td>
<td>24%</td>
<td>56% *</td>
</tr>
<tr>
<td>Radio Phonographs &amp; Televisions</td>
<td>30%</td>
<td>-</td>
</tr>
<tr>
<td>Refrigerators, Freezers &amp; Air-Conditioners</td>
<td>32%</td>
<td>25%</td>
</tr>
<tr>
<td>Tubes, Parts, Batteries &amp; Accessories</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Government &amp; Industrial Business</td>
<td>5%</td>
<td>6%</td>
</tr>
</tbody>
</table>

* Including Phonographs

By 1947, refrigerators made up the largest portion of Philco's business thanks largely to marketing and production techniques similar to those Philco had used to take the lead in the radio industry in 1930. To build refrigerator volume, Philco advertised heavily and cut prices (much to the dismay of the industry). To allow the price cuts and still make a profit, Philco streamlined refrigerator production with the latest mass-production techniques. At this point, Philco was in the #2 spot in the refrigerator business and was closing in on industry leader, Frigidaire.

Philco's chief blunder for 1946-47 was in waiting so long to get into television. Philco television production got underway in April, 1947, a full year after RCA and several other competitors. Philco explained
its tardiness by claiming it had refused to offer the public black and white receivers while the FCC was deliberating on color standards. This is nonsense! Philco had one of the largest television research departments in the industry and knew as well as RCA that color television was still years in the future. Apparently preoccupation with refrigerators caused Philco to miss the signal here. Philco may have delayed television production to wait for a sufficient number of stations to begin telecasts (only a handful of TV stations were on the air in 1946), but in doing so, it allowed RCA to build up a reputation and momentum which would prove difficult for Philco to overcome.

In a rare (for Philco) act of divestiture, Philco sold its Storage Battery Division to the Gould Storage Battery Corporation saying that storage batteries no longer fit into the Philco product lineup. In October, Philco completed its first post-war expansion program with the acquisition of the Rex Manufacturing Company of Cornersville, Indiana, a maker of refrigerators. Prior to the acquisition, Rex had made refrigerators and freezers exclusively for Philco. With this addition, Philco now had facilities capable of an annual production of 3,500,000 television and radio receivers and 700,000 refrigerators. Was Philco expecting the abnormally strong post-war consumer goods market to last forever?

1948 – Postwar Market Softens

During the last quarter of 1948, the postwar boom market for consumer goods faded as a recession, that would last into mid-1949, set in. Sales of radio receivers were particularly hard hit as they were affected both by the recession and by the consumer shift to television. The era of the expensive console radio had past, being supplanted by television. Most radio sales after 1948 would fall in the under $50 class unless combined in high fidelity music systems. Despite the poor fourth quarter, however, the first three quarters of 1948 continued the 1947 boom and Philco dollar sales for the year rose twenty-one percent to $275,424,000. Net profits rose nine percent to $10,531,914, but gross profits as a percentage of sales declined to
7.15 percent from 9.62 percent in 1947. Philco's increasing operating leverage was making itself known by taking a larger bite out of profits as sales dipped slightly.

Even with substantial growth in television sales in 1948, refrigerators still proved to be the stars of the Philco lineup. Refrigerator sales increased sixty-two percent in 1948 to capture forty percent of Philco's dollar sales. Television sales for the first time passed radio sales. The Philco dollar sales breakdown showed that an increasingly large portion of Philco's business was coming from lines which it had added since 1938.

<table>
<thead>
<tr>
<th></th>
<th>1948</th>
<th>1947</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television, Radio &amp; Radio-Phonographs</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Refrigerators, Freezers &amp; Air-Conditioners</td>
<td>40%</td>
<td>32%</td>
</tr>
<tr>
<td>Tubes, Parts, Dry Batteries &amp; Accessories</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Government &amp; Industrial Business</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Diversification continued in 1948 with the acquisition of Electromaster Incorporated of Mt. Clemens, Michigan, an independent maker of electric ranges. Philco decided to add electric ranges to its white-goods line when it discovered that only twenty percent of homes with electricity had electric ranges. The Electromaster plant had a capacity of 100,000 ranges a year.

No sooner was Philco's first expansion plan completed, a second was begun. Total expenditures on plants and equipment totalled $4,000,000 in 1948 and included an expansion of cathode ray tube capacity at The Lansdale Tube Company and a new television receiver plant in Sandusky, Ohio, adjacent to the Philco Auto Radio plant which had been constructed there in 1936. At the end of 1948, Philco owned twenty manufacturing plants with 3,200,000 square feet of floor space.

Finally, on June 3, 1948, John Ballantyne succeeded Larry E. Gubb as Chairman of the Board and William Balderston succeeded Ballantyne as President.
1949 - Recession and Reorganization

Due to the recession, which lasted until summer, 1949 was a disappointing year for Philco. Sales were off twenty-two percent to $214,884,000 while net earnings dropped forty-six percent to $5,691,796. Before tax earnings as a percentage of sales fell to a miserable 3.33 percent. Earnings had dropped substantially more than sales due to Philco's ever increasing operating leverage. Sales for the year declined in all areas of the company's business except television.

Facilities expansion continued in 1949 despite the poor economy. The Lansdale Tube Company was enlarged again and the capacity of the main television plant was increased to 25,000 television receivers per week. At the end of 1949, Philco owned twenty-three plants with 3,800,000 square feet of floor space.

Probably the most important event of 1949 for Philco was the reorganization of the company into a truly decentralized, multi-divisional structure. Philco had been calling its various departments divisions since the 1930's, but it was not until 1949 that a true decentralized structure with semi-autonomous divisions was adopted. Philco described its divisional organization as follows: "With the growth and expansion of the Corporation, a program was inaugurated in 1949 to establish separate divisional organizations in each of the major fields of Philco activity. Our purpose is to provide concentrated effort on each major product by a thoroughly experienced organization. The President or General Manager of each division, who is an expert in his own field, has full responsibility for the successful operation of that division. The President of the Company and the Management Committee establish overall policies for the various divisions and exercise budget and financial control and coordinate their various activities. In this way, the greatest possible concentration of effort is obtained without increasing administrative costs or overhead."

The company was divided into the following divisions: Television and Radio Division, Refrigerator Division, Government & Industrial Division,
Electric Range Division, Philco Television Broadcasting Corporation, Accessory Division, Philco Distributors Incorporated and Philco International Corporation. Although the divisions shared the administrative, advanced research and legal resources of the parent company, each division functioned as an independent unit with its own management, long range planning, research, engineering, production, accounting and sales personnel. Was Philco large enough to support such a structure? Would this new structure, in reality, not increase administrative costs and overhead through duplication of personnel?

According to management theory, a divisionalized structure can allow a firm to be more responsive to its markets by moving the decision making power down in the organization. On the other hand, a divisional structure can increase costs by requiring duplication of effort among the divisions. Also, if proper control is not exercised from the top, short-term gains may be substituted for long-term goals leading division managers to place the welfare of their division ahead of the welfare of the corporation.

Unfortunately, in Philco's case, control from the top was insufficient and this new divisional structure proved to be one of the chief causes for the decline which Philco suffered in the 1950's.

On June 10, 1949, Philco Board Chairman, John Ballantyne, died. He was replaced by James T. Buckley, formerly Chairman of the Executive Committee. It is interesting to note that in the ten years since James Skinner had left the Presidency, Philco was led by four different Presidents (Gubb, Buckley, Ballantyne and Balderston) and four different Board Chairmen (Skinner, Gubb, Ballantyne and Buckley). The continuity of top management which Philco had known in its earlier years was lacking. This contrast is portrayed in Table 4-3. Was internal squabbling over policy causing this rapid turnover at the top?
1950 - Prosperity Revisited

Nineteen Fifty was a banner year for Philco. As the economy rebounded so did sales in each of the company's divisions. Television sales paced the increase rising by an amazing 300 percent! Refrigerator sales were up sharply, air-conditioner sales rose fifty percent and electric ranges, now under the Philco brandname rose 200 percent. Total Philco sales for 1950 were up fifty-six percent to $335,318,000, a new high for the company. Net income rose 172 percent to $15,483,616 while before tax earnings as a percentage of sales returned to a healthy 10.05 percent. High operating leverage was working to Philco's advantage in 1950. This strong performance qualified Philco as a growth company under the Excess Profits Tax Act of 1950.

In the ten years since 1940, Philco's plant area had tripled in size, from 1,400,000 square feet in 1940 to 4,200,000 square feet in 1950. Employment had grown from 5,900 to over 23,000. In 1950, Philco had 127 domestic distributors and 23,000 domestic dealers in addition to 10,000 dealers in foreign countries. Philco had led in U.S. radio sales in every year of civilian production since 1930 and was near or at the top of each of the other industries in which it participated. Since 1919, Philco had spent over $100,000,000 in national advertising to keep the Philco trademark before the public. Yet, Philco would never again turn in a financial performance as strong as the one recorded in 1950. During the 1950's, Philco entered a downward spiral which ate away at profits while sales remained constant or rose slightly. In Section V the reasons behind this decline will be analyzed.
B. Strategic Analysis 1938-1950

Between 1938 and 1950, nearly all of Philco's operating strategies were changed drastically. Formerly a maker only of radio receivers, Philco had diversified by 1950 into the manufacture of air-conditioners, refrigerators, freezers, television receivers, electric ranges, and military electronics. The earlier policy of exercising extreme caution before adding to plant and capacity was thrown to the wind. Between 1940 and 1950, Philco tripled its plant capacity. During this period, Philco's products lost their distinctiveness and began to look like their competition. After the company went public in 1940, Philco's close knit management team disappeared and the firm went through four Chairmen and four Presidents in a ten year period. By 1950, Philco's functional organization structure had been replaced by a highly decentralized structure. Philco was spending increasing portions of its earnings on basic research in the hope of building a patent structure that would rival RCA's. The only familiar parts of Philco's 1950 operating strategies were the Monday morning production scheduling meetings and the heavy advertising budget. Sales had grown from $52 million in 1937 to $335 million in 1950, but despite this impressive increase in sales, the health of the Philco organization in 1950 was questionable.

Because of the abnormal market conditions present during the 1940's, Philco's strong performance in this period can be deceiving. Between 1941 and 1945, Philco's business was stimulated by war contracts. From 1946 to 1948, demand for consumer goods was unusually high due to four years of pent up demand caused by the war. However, when consumer markets faulted in 1949, Philco's internal problems became evident. Increased operating leverage by 1949 had translated a twenty-two percent decline in sales into a forty-six percent drop in earnings. Was Philco off course? Was its new strategy ill chosen? Did its new decentralized structure match its new strategy?
At first glance, Philco's strategy of related diversification seems to have been successful. By 1938, the radio market was saturating so Philco's diversification into white goods seemed to make good sense. The fact that by 1947 over forty percent of Philco's business came from areas other than consumer electronics seems to bear this out. But was diversification into white goods really necessary? The Zenith Radio Corporation provides us with an alternative case.

Zenith in 1938 had sales about half those of Philco and held the number three position in radio sales behind Philco and RCA. In spite of the threat of market saturation, Zenith was one of the few radio manufacturers who chose not to diversify. Instead, Zenith chose to specialize in the consumer electronics field, what it preferred to call "radionics". Through 1942, Zenith's sales and earnings increased at about the same rate as Philco's despite Zenith's lack of diversification into white goods. After the war, Zenith, like Philco, got a late start in television, but once it entered the television market in November, 1948, Zenith quickly moved into the number two position behind RCA and has remained there to this day.

Philco, on the other hand, never gained a strong position in the television market despite its many years of research in the field. Probably because it was preoccupied with its other businesses, Philco televisions lacked the distinctiveness of RCA's and Zenith's products. Consequently, Philco usually ranked a distant third in the television market, behind RCA and Zenith. Zenith's success in specializing in radio and television offers conclusive evidence that diversification was not a necessary strategy for survival for Philco. The upshot of this example is that Zenith's continued success can largely be attributed to its continuation of the basic Philco integrated strategies long after Philco itself had discarded them!

It is interesting to speculate what might have been Philco's fate had it chosen a strategy similar to Zenith's in 1938. But it is clear that Philco was not too interested in what the upstart Zenith was doing at
this time. Philco's dream was to become another RCA. The war added to Philco's delusions of grandeur. By more than doubling Philco's sales and by introducing Philco to basic research, the war convinced Philco that catching up to RCA might not be impossible. Consequently, Philco began pouring increased percentages of its profits into basic research in order to build a patent structure that would rival RCA's. No doubt it was Philco's goal of rapid growth that caused it to sharply increase plant capacity between 1940 and 1950 without considering the consequences that a decline in consumer demand might bring. It is also likely that the reason Philco chose to go public in 1940 was to fund its diversification program.

The decision to go public had far reaching effects on Philco for with the sale of stock to the public, the close knit, "management-owns-the company" atmosphere disappeared. After Jim Skinner left the company, management continuity at Philco all but vanished. However, the war and the postwar boom market obscured the effects that this top management upheaval had on Philco's performance. Unfortunately, the adverse results of Philco's rapid expansion in the forties would not become evident until the fifties when it was already too late for Philco to turn back.
V. Decline: 1951-1961

A. Historical Review

1951 - Consumer Markets Disrupted by Korean War
In 1951, the Philco Corporation entered a downward spiral which would continue for the next decade and would ultimately lead to the sale of Philco to the Ford Motor Company after record losses in 1961. Due to an unsteady market in 1951, caused primarily by concern over the Korean War, Philco sales dropped nine percent to $305,328,670. Because of Philco's high operating leverage and due to heavy start-up expenditures incurred for war-related Government work, before tax profits fell thirty-five percent to $22,012,646, while earnings before taxes as a percentage of sales dropped to 7.2 percent.

Philco activities in 1951 included a large increase in Government work which now made up ten percent of the company's business. Much of this business was made up of microwave communications systems (an area Philco had entered during World War II) and Philco was beginning to achieve limited success in selling these systems to civilian companies as well.

Philco’s expansion program continued strongly in 1951. $8,700,000 was invested in the construction of a new 647,000 square foot television plant in Philadelphia and in another expansion of the Lansdale, Pennsylvania, tube plant. This latest expansion in vacuum-tube manufacturing capacity was to enable Philco to supply wartime needs for the Government without making a dent in civilian tube requirements. Apparently, Philco was betting that civilian tube requirements would increase sharply by the war’s end to take up this added capacity.

Nineteen Fifty-One was also the year in which Philco began research on transistors. The transistor was invented at Bell Labs in 1948 and, thus, AT&T held the major patents in this field. Realizing the potential
importance of the transistor as a device which might someday obsolete the vacuum tube, but not wanting to pay heavy royalties to AT&T, Philco chose to pour heavy research funds into developing an improved transistor which would circumvent the basic Bell patents. While Philco's foresight in this area was commendable, the firm was simply not large enough to invest substantial sums of money on basic research in solid state physics. Yet, over the next decade, Philco would pump millions of dollars into transistor research and development which would never see an adequate return. Philco's expertise was in the marketing of consumer goods, not in the area of basic research. Jaded by its recent successes in research, Philco was wandering naively into areas in which it lacked experience. The results of this diversion into transistors would prove costly.

1952 - Sales Rebound
Philco sales reached a new high in 1952 of $366,963,850, a twenty percent increase over 1951. Unfortunately, rising costs and heavy research and construction expenses caused pre-tax profits to increase only sixteen percent to $25,631,457. Pre-tax earnings as a percentage of sales fell to 6.98 percent.

New construction continued at a rapid pace. In 1952, $7,056,000 was expended on new facilities including completion of the television plant in Philadelphia, and the construction of a refrigerator compressor plant in Bedford, Indiana. The new television plant increased TV production capacity by fifty percent and gave the firm the largest television production capacity in the industry. Additionally, plans were made for a new 430,000 square foot refrigerator and freezer plant in Connersville, Indiana, which would cost $4,000,000 and would increase refrigerator and freezer capacity by fifty percent. Unfortunately, the sales boom which Philco was counting on would prove to be short lived.

Philco's research and engineering activities were expanded considerably in 1952. By the end of the year, 1,800 of Philco's 25,123 employees
were involved in fundamental research and new product development.

It is also interesting to note that Philco's flair for advertising had not diminished over the years. In 1952, Philco sponsored television and radio coverage of the Republican and Democratic National Conventions and the election night returns over the NBC networks. In addition, Philco was sponsoring the "Philco Television Playhouse" and "Don McNeill's Breakfast Club" coast-to-coast.

1953 - Sales Peak
Nineteen Fifty-Three goes on record as the best sales year in Philco's history as a self-managed company. Sales that year totaled $430,419,858, up seventeen percent over 1952. Furthermore, the company was elated to announce that every major Philco division had shared in this increase. However, the earnings picture was not as bright as might be expected. Philco clouded its 1953 pre-tax earnings figure by including in it roughly $8 million received from the sale of television station WPTZ, which it sold to Westinghouse Radio Stations, Inc. If this non-recurring income is removed, pre-tax earnings for 1953 amount to $27,117,280, an increase of only six percent over 1952. Pre-tax earnings as a percentage of sales dropped to 6.30 percent continuing the downward trend which began in 1951.

The economy had been exceptionally strong throughout the first three quarters of 1953, thus, contributing to Philco's strong sales performance, but the market for consumer durables softened in the Fall. The television market was particularly hard hit, leaving many manufacturers with large overstocks which led to severe price-cutting at the year's end. This time, Philco fared no better than the rest of the industry.

During 1953, construction moved forward on the new refrigerator, freezer and air-conditioner plant in Connersville, Indiana. In addition, a new radio and television plant was constructed in Toronto, Ontario, Canada. Total expenditures on new facilities in 1953 amounted to $7,446,000.
In December, 1953, Philco announced an important breakthrough in transistor design with the "surface-barrier transistor" which Philco heralded as "the most important advance in this field since the discovery six years ago of the point-contact transistor". The surface-barrier transistor was an important step forward in transistor design because it was able to operate at frequencies 10 to 100 times higher than the best point-contact transistors then available, thus, overcoming one of the chief obstacles to widespread adoption of the transistor. But more importantly for Philco, the surface-barrier transistor also neatly circumvented many of the basic transistor patents held by Bell Labs. In order to remove the second obstacle to widespread transistor use - price - and to fully capitalize on this new invention, Philco began making plans for a revolutionary new facility to mass produce the surface-barrier transistor (up to this time, transistors were essentially handmade).

1954 - Softening Markets

Nineteen Fifty-Four was the first of several difficult years for Philco. The downturn in consumer goods purchases which had begun in late 1953 continued into 1954. When the market finally stabilized in the fourth quarter, Philco found itself with a great deal of overcapacity. Ironically, Philco's new refrigerator, freezer and air-conditioner plant came on line in mid-1954 and a substantial new television plant had begun operations in 1953. It seemed that just as Philco had completed its wave of post-war expansion, the markets for white-goods and brown-goods faltered.

Consequently, Philco's dollar sales for 1954 were off nineteen percent to $349,277,000. Rising costs brought pre-tax earnings down sixty-one percent to $10,543,695, Philco's worst performance since the recession year, 1949. Pre-tax earnings as a percentage of sales fell to a new low of 3.02 percent.

In addition to the faltering market, Philco's earnings had been seriously affected by a forty-five day strike in the Philadelphia and Sandusky, Ohio,
electronics plants. Citing increased industry competition, Philco claimed it couldn't give in to union demands and still remain competitive. But the union held out and Philco was forced to grant workers a three and one-half percent wage increase.

Despite the softening of the consumer goods market, Philco continued its program of diversification in this area. On January 30, 1954, the facilities and assets of the Dexter Company of Fairfield, Iowa, a maker of washing machines and dryers, were acquired in exchange for 70,000 shares of Philco Common Stock. In addition to this, $5,440,000 was spent on facilities expansion including increased manufacturing capacity at the Lansdale tube plant. In addition, equipment was installed at Lansdale for the automated production of surface-barrier transistors.

The size of Philco's research and engineering staff continued to grow reaching 2,000 persons by the end of 1954. Major research programs included color television, transistors, and guided missiles. RCA had introduced its first color television receiver to the American public in 1954, but Philco chose instead to continue work on its own exclusive one-gun color television system which was simpler than the RCA three-tube system and would circumvent the RCA patents. Philco was pleased to announce that General Electric, Westinghouse, Sylvania and Avco-Crosley had taken licenses on the Philco one-gun color system. Unfortunately, Philco would devote a considerable sum of money to this project only to discover that the one-gun color system was infeasible with existing technology (Sony successfully developed a one-gun color system in the late 1960's).

On August 1, 1954, Philco's Board Chairman, James T. Buckley, declined re-election and, thus, was succeeded by President, William Balderston. James H. Carmine, a thirty-one year Philco veteran who had moved up through the marketing function, was elected President. Both Buckley and Balderston had held their prior positions since 1949.
Philco claimed another advertising first in 1954 by sponsoring the Miss America Pageant over ABC Television in September. To capitalize on this event, Philco hired Miss America of 1955, Lee Ann Meriwether, to plug its "Miss America" line of television sets.

Additionally, in 1954, Philco was hauled into court by the Justice Department on charges that the company's new contracts with its distributors violated anti-trust laws by eliminating competition on the wholesale and retail levels. Because several of its large distributors were selling Philco products to discount houses, Philco cancelled their franchises and proceeded to rewrite its distributor contracts to prevent this practice known as "trans-shipment". The suit was finally settled two years later when Philco signed a consent decree that prevented the firm from including the trans-shipment clause in its distributor contracts but which recognized Philco's rights to choose distributors, to assign geographic areas and to cancel distributors who insufficiently represented Philco in their areas.

1955 - Lull Before the Storm
Due to particularly strong economic conditions in 1955, Philco's performance improved slightly over 1954. Increased competition in all areas of Philco's consumer business, however, kept gains modest. Sales increased seven percent to $373,359,000 while earnings before taxes rose six and one-half percent to $17,286,000. Pre-tax earnings as a percentage of sales rose to 4.62 percent. Unfortunately, the market softened late in the year sending Philco profits into a dive. At this point, it became painfully obvious that Philco was out of control and that a major change in policy was required.

During 1955, Philco invested $4,700,000 in new plant facilities and equipment. The bulk of this sum was spent on conversion of a 100,000 square foot plant in Spring City, Pennsylvania, for the automated manufacture of surface-barrier transistors. Ominously, Bell Labs had announced, in 1955, a new breakthrough in transistor
design, the "mesa", which most industry observers felt was superior to Philco's surface-barrier MADT (micro-alloy-diffused-base transistor). Nevertheless, Philco moved forward in defiance of the rest of the industry by sinking millions of dollars into a plant for the mass production of a product that might soon become obsolete. "Decisions like Philco's are daring in the extreme because the semiconductor art is so new and fluid. At any time, a better product may sweep the market."

Nineteen Fifty-Five saw Philco's entry into another field which would provide a heavy cash drain over the next several years - computers. Philco had high hopes for the future prospects of its fully transistorized experimental computer called TRANSAC.

In order not to let RCA and others get the upper hand in color television sales, Philco put on the market in late 1955 a color television set very similar to RCA's original CTC-1, complete with a three-gun picture tube. Development work continued, however, on Philco's exclusive one-gun color system.

1956 - Reorganization I

By early 1956, Philco realized that drastic changes in organization and policy were required if the firm was to survive. The decline in consumer demand had caused sales to dip, but Philco's and the industry's problems were more deeply rooted. Many of Philco's competitors such as Avco-Crosley and Stromberg-Carlson left the television business entirely in 1956. Conditions in the television industry were similar to those faced by the radio industry in the late 1930's. The market was saturating. Most consumer units owned at least one television, thus, future sales growth would come only from purchases of inexpensive, low-profit, second or third televisions. (Color television still had a ways to go before achieving widespread popularity.) General Electric had aggravated the problem in 1955 by introducing a "portable" television priced at $99.95. General Electric television sales surged but profits
in the industry plummeted. Of the 101 manufacturers in the television receiver business in 1954, only fifty remained by 1957.\textsuperscript{3} And many of those that remained were reeling. Conditions in the white-goods business were no better.

In Philco's case, the situation was far worse; the firm was essentially "out of control". Most of the blame for this situation can be laid upon Philco management and on the decentralized organization which was put in place in 1949. Philco was basically too small for the degree of decentralization its managers had chosen. Each of Philco's product lines operated as a separate division with profit and loss responsibilities, meaning that each division had its own functional departments. This created unnecessary duplication which increased costs. In addition, centralized control from the top was so minimal that each division made operating decisions in its own best interests, without regard to the overall welfare of the corporation. As Philco Television Division General Manager, Henry Bowes, put it, "My job was to get all I could for TV; I was out strictly for the buck and so was every other general manager. Nobody was thinking about Philco."\textsuperscript{4} According to Fortune, Philco's "divisions seemed to be competing harder with each other than with the company's competition".\textsuperscript{5}

Philco's post-war expansion program was creating serious problems as well. By grabbing quickly for all the business it could get, Philco had expanded far too rapidly and in a haphazard manner. The slow but steady expansion scheme which had worked so successfully for Philco in the pre-war era was totally abandoned after the war. Consequently, Philco's operating leverage increased to the point where a slight dip in sales sent profits skidding. Additionally, Philco had been slow to adopt automated manufacturing techniques so that by 1956 its per unit costs were among the highest in the television set industry. (Just the opposite of the situation that prevailed in the 1930's!) This, in conjunction with rising labor costs and falling retail prices, had caused costs to rise from 79.2 percent of sales in 1950 to 88.6 percent in 1956. Additionally, Philco's heavy research expenditures in the
areas of transistors, color television and computers had been a heavy drain on profits.

Not surprisingly, Philco's financial performance in 1956 was disappointing. Sales fell seven percent to $347,901,000 while pre-tax profits skidded ninety-seven percent to $558,000. Pre-tax earnings as a percentage of sales amounted to an almost imperceptible 0.16 percent.

In order to cope with these mounting problems, Philco's Board was forced to admit that the time had come for a major shakeup in management. Hard-headed tight-fisted management was required and the "old regime" felt they couldn't handle it. As one of the "old regime" put it, "We knew that some tough decisions had to be made. We had become a close, family type of company and it is difficult to get tough with your friends. But the business had changed - it had become a young man's business."6

Thus, in April, 1956, James H. Carmine resigned as President and forty-one year old James M. Skinner, Jr., formerly head of the Television Division, took the helm. Skinner, Jr., was the son of James M. Skinner, Sr., who had lead Philco so successfully through the depression. When his father left Philco in 1939, Skinner, Jr., had stayed on and had progressed quickly within the company. Skinner wasted no time in getting Philco's reorganization underway. At the 1956 Annual Stockholder's Meeting, the size of the Board of Directors was reduced from twenty-two to thirteen. In the process, Skinner was able to convince many of the old timers to retire. This task was probably not as difficult as it might seem since most of the old timers were large stockholders and their choice was between letting a new regime try its hand or being faced with a lot of worthless stock. Thus, by the end of 1956, Philco's new management team was in place and the reorganization could begin.

Despite the upheaval at the top, and its shaky financial situation (in 1956, it was an open secret that several of Philco's banking connections were getting restless7), Philco continued to add to its
holdings. In order to improve its electronic research and development facilities, Philco acquired the Sierra Electronic Corporation of San Carlos, California. Late in 1956, Philco acquired the Bendix home laundry division of Avco Manufacturing Corporation. In addition, Philco picked up Avco's foreign licenses for consumer products marketed under the Crosley and Bendix tradenames.

In an attempt to streamline operations, Philco closed its Mt. Clemens, Michigan, electric range plant and consolidated range production into the newly acquired Bendix washing machine plant in Nashville. Additionally, $6,679,000 was spent in 1956 for new plant and equipment. Most of this amount went into the new transistor production facility in Spring City, Pennsylvania, and into automated printed circuit manufacturing equipment for the Philadelphia television plant. Philco won a major concession from its union in 1956 by convincing the union to accept the new automated equipment. Philco pulled no punches in explaining to the union that it was a case of "automate or die". In a ten-page memo to workers, Philco explained that the mechanization program - Q (for quality) Line production - was the company's only hope in a "fight for our economic lives in Philadelphia". The memo went on to say, "Philco is now up against the keenest competition in its entire history in television from giants like RCA and GE and from smaller companies like Zenith, Motorola and Admiral. We are losing business to our competitors because our prices are too high. We buy components and cabinets as favorably as anybody, but labor costs are a different story. Competitors have adopted modern mechanized processes and work methods that produce higher quality merchandise with fewer rejections."8 Faced with automation or a defunct company, the union accepted "Q Line". As one union official put it, "If management is sincere about cutting costs and increasing sales, it will put the company in a better position to grant wage increases."9

1957 - Reorganization II
As a result of slight improvements in the consumer goods market during the first three quarters of 1957, Philco sales for the year increased
five percent to $372,629,000. Pre-tax earnings rose to $6,939,000, an increase of 755 percent. Pre-tax earnings as a percentage of sales rose to a still miserable 1.86 percent. But markets softened, once again, in the last quarter of 1957 as the economy entered a recession that would last into mid-1958.

Philco's performance in 1957, under the new management, was encouraging, however. Inventories were cut by twenty percent and Philco was able to repay $18 million in bank loans to eliminate its short-term debt. Long-term materials buying cycles which had been adopted during post-war periods of materials scarcity were abandoned and buying was tied closely to use. Television production was consolidated into a smaller area in the main Philadelphia plant with the 300,000 square foot saved going to the Accessories Division. The Philco compressor plant in Bedford, Indiana, was closed and the plants put up for sale (Philco had discovered that it was cheaper to purchase compressors than to make them). And, a central warehouse was opened in Elizabeth, New Jersey, to serve the Middle Atlantic area and, thus, save on paperwork and transportation costs.

In addition, four new Board members were elected from outside the corporation to ensure a more diversified future leadership. In conjunction with the newly acquired Sierra Electronic Corporation, Philco began construction of a $1,000,000 technological facility in Pala Alto, California, to be known as the Western Development Laboratories.

But most significantly, Skinner decided that he needed outside help in solving Philco's organizational problems and, thus, retained the services of Arthur D. Little, Inc. to redesign Philco's unwieldy multi-divisional structure.
1958 - Reorganization III

Nineteen Fifty-Eight was a year of retrenchment but also of new hope at Philco. The recession caused Philco sales to drop six percent to $351,093,000. Pre-tax profits fell sixteen percent to $5,800,000 while pre-tax profits as a percentage of sales declined to 1.65 percent. Despite the drop in sales and profits for the year, hope centered around the new organizational framework designed by Arthur D. Little, Inc., which Philco put in place in August, 1958.10

ADL's organizational plan essentially eliminated the eight separate Philco divisions and replaced them with a Government & Industrial Division and a Consumer Products Division. The Consumer Products Division consisted of two operations groups - one for electronic products and one for appliances - and a single marketing group. The operations groups were responsible for design, engineering, and manufacturing, while the marketing group was to buy the products of the two operations groups to sell to Philco distributors. The marketing group had complete responsibility for warehousing, distributor relations, merchandising, sales and service.

The most innovative part of Philco's new structure was that both the operations groups and the marketing group had well-defined profit responsibilities. Operations set the prices at which it sold goods to marketing such that it would make a reasonable profit. Marketing maximized its profit by exercising skill in ordering from operations the right number of the right products. Marketing was responsible for making yearly sales estimates, and operations set its production and prices based on these estimates. In this way it was easy to distinguish which division was turning in the superior performance. If operations found a way to lower production costs, it would get credit for the extra profit. However, if marketing was able to achieve higher than expected sales, it would get the credit for the extra profit.

In order to oversee this system and prevent either group from padding its profits, the Consumer Division Vice President and his Staff kept a close watch on prices set by operations, the size of marketing's purchase
orders and on product design and costs.

One of the results of the ADL study was that Philco was extremely weak in long range planning. As ADL's John P. Stevenson put it, "Management was constantly putting off tomorrow's plans for today's sale." To correct this situation, the Vice President of Marketing was assigned the task of long range profit policy.

Additional changes centered around internal allocation of funds. Prior to the reorganization, budgets were allocated as a percentage of each product's earnings. Consequently, the large divisions got larger and the smaller divisions were unable to grow. Under the new system, money was allocated partly on the basis of need.

Of course Philco's problems were not limited to organizational structure. Serious problems still remained in the diversity and size of Philco's manufacturing facilities as well as in Philco's distribution methods. Consequently, ADL was commissioned to do two additional studies for Philco; one study to be completed in the Spring of 1959 would advise Philco on the desirability of consolidating all or parts of Philco's manufacturing facilities. The second study, due in 1960, was to address the company's future policies with regard to dealers and distributors.

On the product front, 1958 saw the introduction and sale of Philco's first commercial, large scale data processing system, the Transac S-2000. Despite its lateness into the computer market, Philco hoped to make inroads with this, the world's first all-transistorized computer. (IBM would not introduce its transistorized 7070 until 1959.)

From the Consumer Products Division came the "Predicta" line of television receivers. These revolutionary sets had exposed picture tubes which were either mounted above the chassis "box" or entirely separate from it. While sales of this model were initially brisk, as the novelty wore off,
so did sales. The Predicta was discontinued in 1960.

1959-1961 - Final Years
Financial results for 1959 seemed to indicate that Philco's new organizational structure had, indeed, turned the company around. Due to an improved economy, sales increased thirteen percent to $397,792,000 while pre-tax profits rose 168 percent to $15,534,000. Pre-tax profits as a percentage of sales rose to 3.9 percent. But this performance improvement was to be short lived. Nineteen-sixty's financial results showed a serious decline indicating that Philco's problems had not yet been solved. Sales for 1960 rose 0.7 percent to $400,587,000, but pre-tax profits fell eighty-five percent to $2,273,000 yielding a pre-tax profit to sales ratio of just 0.56 percent!

During 1960, Philco spent $14,291,000 on new plant and equipment; most of this going for a new computer plant in Willow Grove, Pennsylvania, and for a new research facility in Blue Bell, Pennsylvania. The newly organized Computer Division was proving to be quite a financial drain on the Corporation, but Philco insisted on continuing its attempt to confront IBM head on.

Work in the newly formed Research Division centered around space and satellite communications, microminiature electronic systems, radar and computer development. There was no doubt that Philco had entered the space age. By 1960, transistor radios were making up fifty percent of Philco's radio business and the first effects of Japanese price competition were being felt.

But the financial situation worsened considerably in 1961. Another mini-recession was sweeping the country and while sales fell only slightly to an annual rate of $392,000,000, Philco lost $4,400,000 in the first two quarters of 1961 on sales volume of $196,000,000. It was clear that Philco still had a long way to go in restructuring
itself to compete successfully in the 1960's.

Fortunately for Philco's stockholders, the Ford Motor Company became attracted to Philco in 1961. Ford was particularly interested in Philco's aerospace work and saw in Philco the opportunity to get into this business at a bargain price. Additionally, the acquisition of Philco would allow Ford to compete directly with General Motors Frigidaire Appliance Division.

In September, 1961, Ford announced its plans. It would acquire Philco through an exchange of stock; one share of Ford Common for 4.5 shares of Philco Common. The equivalent cash price was estimated to be $110,000,000 to $120,000,000. Upon approval from the Justice Department's Anti-Trust Section, the deal went through on December 11, 1961. Ford viewed Philco as a basically sound company with serious management problems. Ford felt confident it could supply the management talent needed to turn Philco around.

Ford was able to turn Philco around to the point where by 1967, sales of the Philco-Ford Division were nearing $1,000,000,000. Because of increased Japanese competition, Ford chose to leave the consumer electronics business in 1974 and, thus, sold the Philco Consumer Products Division to GTE-Sylvania. Soon the Philco properties in Philadelphia were put up for sale and the Philco Consumer Products Division was moved to GTE-Sylvania's Entertainment Products Group Headquarters in Batavia, New York. Ford retained the Philco Aerospace Division, however, which exists today in Lansdale, Pennsylvania, as Ford Aerospace & Communications Corporation. Early in 1981, GTE sold the Sylvania Consumer Electronics Division (which owned the Philco name) to North American Phillips Corporation, the U.S. subsidiary of Phillips, the Dutch electronics giant. Whether NAP will choose to continue the Philco trademark is unclear at this time.
B. Strategic Analysis 1951-1961

The 1940's had provided a relatively benign environment which made it difficult to assess the operating performance of Philco's new management team. The 1950's, however, with their return to normal competitive conditions would prove conclusively that Philco had lost its ability to compete successfully when it adopted a new strategy and a new structure.

Philco's strategy in the 1950's was one of rapid expansion and diversification. Between 1951 and 1961, Philco invested over $55 million in new plant and equipment. New capacity was added seemingly without regard to slowing growth in most of Philco's businesses. Philco's diversification program which had seen the firm enter the consumer durable white goods market in the 1930's and 1940's moved Philco into the semiconductor, computer, aerospace communications and electronic research fields in the 1950's. It seemed that because Philco "had its fingers in so many different pies" it was unable to devote adequate attention to any of its businesses.

Again, a comparison with Zenith is enlightening. Instead of embarking on an ambitious program of expansion and diversification in the post-war period, Zenith chose a strategy very similar to the one Philco had used so successfully in the 1930's. Zenith chose to specialize in the manufacture of radios, televisions, and hearing aids, what it termed "radionics". Zenith kept a close watch on the market place and exhibited a superb talent for introducing new products that were right for the times. Zenith's seasoned and consistent management team (Omdr. McDonald very actively remained Zenith's CEO until his death in 1958) kept a close watch over production and costs, being careful to add new capacity only when absolutely needed. An aggressive advertising campaign constantly reinforced the Zenith image of quality; "The Quality Goes In Before the Name Goes On" was a slogan which Zenith began using in 1927.
### Table 5-1
Zenith Radio Corporation Financial Data 1929-1961

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>EBIT</th>
<th>After Tax Earnings</th>
<th>Zenith EBIT/Sales %</th>
<th>Philco EBIT/Sales %</th>
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<td>1929</td>
<td></td>
<td></td>
<td>1,110,000</td>
<td></td>
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<td>1930</td>
<td></td>
<td>(258,000)</td>
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<td>1931</td>
<td></td>
<td>(483,000)</td>
<td></td>
<td></td>
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<td>1932</td>
<td></td>
<td>(399,000)</td>
<td></td>
<td></td>
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<td>1933</td>
<td></td>
<td>(578,000)</td>
<td></td>
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<td></td>
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<td>1935</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1936</td>
<td>8,538,000</td>
<td></td>
<td>1,213,000</td>
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<td>1937</td>
<td>16,967,000</td>
<td></td>
<td>1,904,000</td>
<td></td>
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<td>1938</td>
<td>17,299,000</td>
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<td>701,000</td>
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<td>1939</td>
<td>17,980,000</td>
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<td>1,075,000</td>
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<td>1940</td>
<td>20,381,000</td>
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<td>1,394,000</td>
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<td>1944</td>
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<td>(169,506)</td>
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<td>1945</td>
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<td>57,000,000</td>
<td>457,134</td>
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<td>79,406,133</td>
<td>6,324,165</td>
<td>3,484,515</td>
<td>7.96</td>
<td>9.62</td>
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<td>1947</td>
<td>77,146,861</td>
<td>4,225,848</td>
<td>3,125,848</td>
<td>5.48</td>
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<td>1948*</td>
<td>99,210,746</td>
<td>11,310,047</td>
<td>6,860,047</td>
<td>11.40</td>
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<td>1949*</td>
<td>87,704,071</td>
<td>11,527,003</td>
<td>5,627,003</td>
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<td>110,022,780</td>
<td>11,770,740</td>
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<td>13,733,357</td>
<td>6,208,357</td>
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<td>1953</td>
<td>138,608,360</td>
<td>11,786,264</td>
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<td>8.50</td>
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<td>1954</td>
<td>152,905,005</td>
<td>17,104,491</td>
<td>8,034,491</td>
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<td>1955</td>
<td>141,529,855</td>
<td>13,298,717</td>
<td>6,178,717</td>
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<td>0.16</td>
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<td>1956</td>
<td>160,018,978</td>
<td>17,340,577</td>
<td>8,165,577</td>
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<td>1.86</td>
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<td>1957</td>
<td>195,041,624</td>
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<td>12,116,165</td>
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<td>1.65</td>
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<td>1958</td>
<td>260,033,866</td>
<td>35,430,144</td>
<td>16,630,144</td>
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<td>3.90</td>
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<td>32,475,819</td>
<td>15,225,819</td>
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<td>274,167,987</td>
<td>38,354,788</td>
<td>18,014,788</td>
<td>13.99</td>
<td>loss</td>
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* TV shipments begin November, 1948
** 8 months
Not surprisingly, Zenith thrived during the competitive fifties. Table 5-1 compares Zenith's economic performance in this period with that of Philco. Despite (and probably largely because of) the fact that Zenith remained undiversified, their sales grew more quickly than Philco's, and their earnings before tax as a percentage of sales never fell below eight percent throughout the period 1949-1961. Zenith's 1961 pre-tax earnings were over $38 million; a figure Philco never achieved despite its larger size.

While Philco's strategy of diversification and rapid expansion made it difficult for the firm to compete with lean competitors like Zenith and with rich competitors like GE or RCA, its ill-chosen corporate structure compounded Philco's problems. In order to bring the level of decision making down closer to the marketplace in each of its operating division, Philco had put in place a highly decentralized organizational structure in 1949. While the concept looked good on paper, Philco really was not large enough to support the degree of decentralization it selected. Centralized control from the top was minimal so each division was essentially allowed to run free. The result was much corporate infighting and little regard for the overall welfare of Philco as a whole. Little or no long range planning was done and capital allocation was based on existing size, not on growth potential.

By 1956, when management acknowledged the problem, it was already too late to turn the company around. Even a new management team with a state of the art organization design provided by Arthur D. Little, Inc. found itself unable to make and afford the sweeping changes that were necessary to effect a turnaround. The Ford Motor Company provided what seemed to be the only viable solution - takeover by a larger, better managed, more financially able company.
VI. The Philco Experience and Corporate Strategic Theory

One of the most useful aspects of a historical case study such as this one is that it provides additional empirical data with which to test the theories stated in existing works in the field of corporate strategy. In addition, a comparison with current theory can provide us with additional insight into the reasons behind some of the actions taken over the years by Philco management.

The Philco corporate history provides yet another corroboration of the basic thesis stated in Alfred Chandler's classic 1962 book that in order to maintain efficiency, if a firm changes its strategy, it must necessarily change its structure such that the structure is consistent with the new strategy. Philco provides examples of both the successful modification of structure to match a new strategy and the failure of management to adopt an appropriate structure as strategy was changed.

When Philco entered the radio business in 1928, the firm honed its existing functional organization structure to meet the needs of its new strategies. During the Jim Skinner years (1930-1938), Philco's structure was completely in tune with its strategy with the result that during this period the firm was extremely successful. When the firm began to diversify in 1938, however, it failed to change its structure until 1949 and at that time chose a structure that was inappropriate for its strategy. According to Chandler (1962, P302) many firms in the post World War II boom were faced with structures which no longer matched their strategies due to increased diversity in their businesses. Unfortunately, according to Chandler (1962, P323) too many firms during this period adopted the GM/DuPont style decentralized structure without taking into account the differences between their needs and the needs of a multi-divisional auto or chemical company. This describes Philco's decision to adopt a decentralized structure in 1949 exactly. Philco
simply was not large enough for the high degree of decentralization which it selected.

Additionally, Chandler found that in several cases, truly innovative organizational change was preceded by a crisis situation and the exit of existing management; e.g., Billy Durant's exit from the troubled General Motors in 1920. The events that transpired at Philco between 1956 and 1958 again support Chandler's findings. When it became clear to Philco's board in 1956 that the company was out of control, they appointed a new leader (Jim Skinner, Jr.), who then moved to revamp the company organizationally. Thus, it took Philco twenty years to adapt its structure to match its strategy. During the 1940's, Philco's structure/strategy mismatch had little effect on profits. This is consistent with the conclusions of Galbraith & Nathanson (1978, P139) (based on empirical work done by Rumelt), who argue that a mismatch between strategy and structure leads to ineffective performance only when competitive conditions prevail. Competitive conditions did not prevail in the 1940's. Government contracts kept most firms busy during the first half of that decade while pent up demand for consumer goods created unnatural demands during the second half of the 1940's. Thus, it was not until competitive conditions returned during the early 1950's that the mismatch between Philco's strategy and structure made itself known via falling profits. Thus, when Philco's structure matched its strategy (in the 1930's), the firm was successful. During the 1940's when competitive conditions were absent, Philco's strategy/structure mismatch had little effect on the firm's performance. But when competition returned to the consumer goods market in the 1950's, Philco's mismatch between strategy and structure led to a crisis (in 1956) that culminated in the entrance of a new leader who would go on to create (along with A.D.L.) a structure to match the firm's strategy.

One feature of strategy development at Philco that becomes evident from this study is that Philco's strategies, both successful and unsuccessful,
evolved over time. This is consistent with James Brian Quinn's view of corporate strategy. Indeed, he argues that successful strategy comes from practicing "logical incrementalism" which he defines as "consciously trying to deal with precipitating events in an incremental fashion" (Sloan Management Review, Fall 1978, P7). In effect, strategies evolve over time in response to the changing environment. Thus, most executives will wait until the last possible minute before committing resources to any course of action. Quinn goes on to explain that complete strategies will be publicly stated only when they are completely evolved. Philco's integrated production, product, marketing and organizational strategy of the 1930's evolved in just this way; in response to changes in Philco's environment. Yet, only in 1931, when the strategy was fully worked out, did Philco management discuss their integrated strategy publicly, and, of course, Philco was eminently successful during the 1930's.

Yet another recent paper in the field of business strategy (actually manufacturing strategy) also helps to explain the success of Philco's integrated strategy of the 1930's. Wickham Skinner's paper 'Manufacturing - Missing Link In Corporate Strategy' (Harvard Business Review, May-June 1969, P136) discusses the importance of manufacturing in the creation of an integrated corporate strategy. Apparently, Philco's Jim Skinner was far ahead of his time in understanding this point since manufacturing and production was an important part of Philco's integrated strategy. In order to be consistent with Philco's overall strategy of providing more set performance per dollar, manufacturing costs had to be kept low. But plants had to be kept flexible to accept the bi-annual product changes that the radio industry demanded. And, to prevent overproduction and the consequent layoffs and unhappy dealers that overproduction would create, production had to be carefully scheduled. This was all part of Jim Skinner's integrated strategy.

Philco's strategies of diversification also support the existing literature. Research by Rumelt and similar work by Channon allows
Galbraith & Nathanson (1978, P45) to conclude that "diversification is pursued only after the single business begins to decline. If prospects are good, no diversification occurs. When diversification does occur, however, greater success is achieved by going into related businesses as opposed to unrelated ones." In Philco's case, the initial decision to diversify came in 1938 following two years of losses and with the prospect of a saturated radio market. This initial stage of diversification (into white goods) proved successful for Philco because it was related diversification, that is, the new products could be marketed through the existing channels of distribution. Philco was above all a consumer durables manufacturer and the diversification into white goods was simply a broadening of their line of consumer durables.

Philco's postwar diversification into what might be broadly classed as industrial electronics proved unsuccessful, however, because, in this case, the firm was pursuing a strategy of unrelated diversification. Industrial electronics required entirely different channels of distribution from what Philco was used to in its consumer durables business. The industrial or military buyer was different from the consumer and, thus, placed different requirements on Philco. The irony of this situation is that Philco very likely viewed its move into industrial electronics as one of related diversification because, at that time, it is likely that they viewed themselves as an electronics manufacturer rather than a manufacturer of consumer durables!

Thus, this case study of Philco Corporation has supported not only Alfred Chandler's basic thesis that structure must follow strategy, but it also supports a number of more recent studies which expand on Chandler's work.
VII. Conclusions

This study of the Philco Corporation has been largely an exercise in inductive reasoning. By carefully examining the facts contained in Philco's corporate history, I have attempted to deduce patterns in Philco's behavior that can serve to explain the firm's success in the 1930's and its failure in the 1950's. In order to put a framework around the conclusions that can be drawn from this study, it will be helpful to divide our analysis into two parts. The first part will focus on the impact of internal factors upon Philco's performance, including management style, corporate strategy, organizational structure and the role of research and development. The second part will examine the effects that external factors such as industry rivalry, product life cycle, war, and economic conditions have had on Philco's performance.

Internal Factors:
The role of the dominant leader is evident in nearly all of the successes of the American radio industry. It is impossible to separate David Sarnoff from RCA, Eugene MacDonald from Zenith, Powell Crosley, Jr. from Crosley or James Skinner from Philco. In fact, it is highly likely that without Jim Skinner, Philco probably wouldn't have survived the depression. Looking back upon Philco history, it was Skinner who involved the firm in nearly all of its successful early ventures; starting batteries, radio batteries, socket power units, radio receivers, midget sets, and auto radio. Furthermore, it was Skinner who introduced the firm to effective advertising and who masterminded Philco's phenomenally successful integrated strategy encompassing product, marketing, organization, production, and distribution that served the firm so well during the 1930's.

With Skinner at the helm, Philco prospered. The firm seemed to fully understand its strengths and weaknesses and it exploited both to its
greatest advantage. During the Skinner years, Philco was lean, aggressive and quick on its feet, much like Skinner himself. But after Skinner left, Philco seemed to lack a corporate personality. It did not appear lean and aggressive and, in fact, it no longer was. Skinner’s tenure as President had lasted nearly ten years. The ten years following Skinner’s departure saw four Philco Presidents, none of whom stand out as having had a particularly great impact on the company. Not until Jim Skinner, Jr. became Philco’s President in 1956 did the firm again appear to have a strong leader. In fact, Skinner, Jr.’s quick rise to the Presidency may have been a statement on the part of Philco’s board that it realized that what it needed to turn the firm around was another Jim Skinner.

Philco’s history provides a fine example of the importance of choosing a correct strategy and then fitting to the organization a structure appropriate to that strategy. During the Skinner years, Philco developed an integrated strategy designed to win and keep first place in radio industry sales. The strategy was quite simple. In order to build a competitive price barrier, Philco kept production costs low by utilizing the latest production technology and by adding to plant capacity only when necessary. In order to retain the best dealers in the industry, Philco kept a close watch on sales and scheduled production to avoid overstocking. Product engineering and styling were superb and prices were set just below the competition. An aggressive advertising campaign was maintained and designed (along with the Philco product line) to facilitate the clever "selling-up" marketing strategy that Philco had developed. This strategy worked as intended largely because it was appropriate to Philco and the industry and because it was implemented by an organizational structure consistent with this strategy.

In order to be successful, this strategy required a compact, close knit management team able to react quickly to competitive pressures and the demands of the marketplace. Philco’s organization structure provided
just that. Set up as a functional organization, Philco's management team owned all the Philco stock and, thus, were motivated towards a common goal. It was this close match between strategy and structure which was largely responsible for Philco's success in this era.

But when Jim Skinner left Philco in 1939, the firm's strategy changed. The new strategy became one of related diversification into white goods and was matched by a structural change as the firm sold stock to the public for the first time. In the immediate pre-war years, the move to related diversification seemed to make sense; the radio market had saturated and the move into white goods allowed the use of Philco's existing channels of distribution. The effects of going public, however, are difficult to evaluate. Philco's management team became less effective; but whether this was caused by the fact that they no longer owned all of the stock or by the loss of Skinner is unclear. I suspect that both events played equally strong roles.

The war had a drastic impact on Philco's strategy. Besides doubling the firm's dollar sales, the war also had the effect of introducing Philco to basic research and government work. After being exposed to rapid growth and lucrative military contracts, Philco wanted more of the same. Thus, the firm's postwar strategy became one of continued growth through rapid expansion and diversification into areas outside of consumer durables. The new areas of diversification, military electronics, transistors, computers and aerospace electronics were all very research intensive and were very different from Philco's existing consumer durables businesses. In order to define these new areas of diversification as related or non-related, it is necessary to decide whether Philco was in the consumer durables business or the electronics business. Because of the large contribution to Philco sales that was made by white goods, defining Philco as a consumer durables company seems to make sense. In this case, most of Philco's postwar diversification must be termed non-related. Because both the customers and the distribution networks were different for the new
areas of diversification, the most important element of synergy, common channels of distribution with existing products, was missing with Philco's entry into these new fields.

To compound the problems created by this unneeded and unrelated diversification, Philco changed its structure in 1949 by adopting a highly decentralized multi-divisional form. This new structure was inappropriate to a company of Philco's size. The duplication of effort at the divisional level increased overhead and administrative expenses and the lack of control from the top created infighting and an inappropriate level of competition between the divisions. By the mid-1950's, the inappropriateness of Philco's strategy and structure became painfully obvious to management via plummeting profits. The new organizational structure designed by Arthur D. Little, Inc., which was put in place in 1958, seemed appropriate to a new, streamlined Philco. But Philco's strategy of unrelated diversification and high levels of capital expenditure continued, making a recovery impossible.

External Factors:
The most significant of the external factors that affected Philco's performance during the years of this study was industry rivalry and competition. During the 1930's, Philco expended a great deal of effort in competing with arch-rival RCA. Because of its comprehensive patent structure, RCA was a dominant force in the radio industry from the time of its inception. Philco was greatly annoyed about having to pay patent royalties to RCA and, thus, did everything in its power to both minimize the payments and antagonize its rival. When World War II both doubled Philco's dollar sales and introduced it to basis research, Philco began to think that it might be possible to compete with the giant RCA on all fronts. When RCA entered into a patent sharing arrangement with Philco in 1947, Philco became more convinced that it could compete head to head with RCA. Thus, millions of dollars were poured into basic research, Philco's television and
and refrigerator plants were expanded seemingly without regard to predictions of future demand, and Philco embarked upon a program of unrelated diversification into areas like transistors, aerospace and computers. In short, Philco's delusions of grandeur inspired by its wartime successes were the seeds of its destruction.

Philco had chosen an inappropriate role model. Philco was not and never could be an RCA. The size difference between these two firms was too great. Philco's chief competitor was Zenith. Interestingly enough, Zenith realized as early as 1933 that Philco was its main competition. By adopting Philco-like strategies of tight production cost controls, aggressive marketing tactics and popular prices, Zenith shot from tenth to third place in the industry between 1934 and 1938. When Philco embarked on its program of related diversification in 1938, Zenith paid no attention and continued with the same one-product strategy which had proven so successful for both it and Philco over the preceding five years. In fact, Zenith very successfully maintained this strategy right into the 1970's, long after Philco had ceased to be a separate entity! If Philco had chosen to continue to be solely a producer of radio and television receivers, like Zenith, the final outcome might have been quite different.

Another external factor which continually affected Philco's strategy was the product life cycle. As the market for radio batteries disappeared, Philco began manufacturing socket power units. When the socket power business disappeared, Philco entered the radio receiver business. And as the radio receiver business saturated, Philco supplemented its radio line with a line of refrigerators and air-conditioners. But it was at this point that Philco may have read the future incorrectly. Television was just around the corner in 1938 waiting to rescue the radio industry. Due to its ten years of experimentation with television up to this point, Philco should have been in as good a position as anyone in the industry to realize this. Unfortunately, Philco's preoccupation with white-goods distracted its attention from the potentially lucrative television
business. Consequently, Philco entered television late and never quite reached its potential in this field due to its lack of concentration in consumer electronics.

In addition, changing economic conditions had a very subtle effect on Philco in the early years and a very observable effect in the later years. There is no doubt that Philco's strategies during the depression were tailored to the economic conditions that prevailed during that period. The entire selling-up scheme would tend to work best with depressed economic conditions. But the depression was actually quite beneficial for Philco because it accentuated the difference between Philco's overall strategy and that of the competition. In normal or prosperous times, Philco might have had more difficulty in attaining the number one position in the industry. But with the poor economic conditions that prevailed in the early 1930's, Philco's higher level of business sophistication allowed it to move quickly past its less efficient competition.

In the 1950's, economic swings had much the opposite effect on Philco. Because the firm had chosen a very high level of operating leverage and additionally had not kept up with the competition in adopting the latest production techniques, slight economic downturns sent Philco's profits skidding. Ultimately, it was Philco's inability to handle these downturns that signaled the necessity for a major change in both strategy and structure.

**Summary:**
The study of the Philco Corporation is particularly interesting because here we have a firm that rose to the top of its industry then fell from its position of leadership in a time period covering little more than thirty years. Philco's success in the 1930's was due to a number of key factors. During this period, Philco's integrated strategy truly matched the demands of the marketplace. Of equal importance, the lean Philco structure led by Jim Skinner was exactly in tune with the demands of
Philco's strategy. During the 1930's, Philco's role was that of the world's leading producer of radio receivers. Philco's understanding of this role was of crucial importance to its success.

But in the 1940's, Philco began trying to be something that it was not. During this decade, the firm revised its strategy first through a program of related diversification into white-goods and then through unrelated diversification into research-intensive military and industrial electronics. To make matters worse, the firm failed to modify its structure to match its new strategy. Because of the lack of competitive market conditions in the 1940's, the mismatch between Philco's strategy and its structure produced no financial signals until the return of competitive market conditions in the 1950's. Having been lulled into complacency by the unrealistic market conditions which prevailed in the 1940's, Philco was slow to react to the financial signals it received in the early 1950's which indicated that trouble was at hand. By the time Philco did react in 1956, the firm was out of control and a turnaround proved impossible without outside help.

Thus, the Philco story provides yet another example of the importance of maintaining a match between strategy and structure. But, beyond this, the Philco experience also teaches us the importance of choosing the right strategy, selecting the correct role model, having a strong and consistent management team, and choosing appropriate types of diversification. A proper understanding of these concepts is as important for firms today as it was for Philco many years ago.
## APPENDIX 1  PHILCO FINANCIAL DATA 1917-1961

<table>
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<tr>
<th>Year</th>
<th>Radio Production</th>
<th>Sales ($)</th>
<th>Earnings Before Taxes ($)</th>
<th>Earnings After Taxes ($)</th>
<th>EBIT/Sales %</th>
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* Includes special credit
REFERENCES

Chapter II

1. Electrical World, March 4, 1893, P164-5
2. Electrical World, September 16, 1893, P212
4. Electrical World, June 22, 1895
5. Electrical World, December 28, 1895
7. The Philco Flash, June 1931
8. Fortune, February 1935, P78
9. Boyang, P154
10. Philco Radio Sales Manual, 1926, P1
11. Radio Retailing, June 1927, P139

Chapter III

1. Boyang, P101
2. Broadcasting - 1968 Yearbook, P B-250
3. MacLaurin, P136
4. Sales Management, June 15, 1936, P886
5. Radio Retailing, April 1928, P24
6. Radio Retailing, May 1928, P78
7. Radio Retailing, June 1928, P97
8. Radio Retailing, December 1928, P72
9. Printer's Ink, December 31, 1931, P69
10. Radio Retailing, January 1929, P17
11. Printer's Ink, December 31, 1931, P69
12. Fortune, February 1935, P76
13. Ibid.
14. Ibid.
15. Fortune, February 1935, P166
17. Fortune, February 1935, P164
18. Printer's Ink, October 27, 1931, P18
19. Ibid.
20. Radio Retailing, August 1930, P75
21. The Philco Flash, June 1931
22. Fortune, February 1935, P166
23. Sales Management, June 15, 1936, P886
24. Fortune, February 1935, P166
26. Fortune, February 1935, P166
27. Ibid., P78
28. Printer's Ink, December 31, 1931, P69
29. Ibid.
30. Sales Management, November 14, 1931, P234
31. Fortune, February 1935, p168
32. Printer's Ink, October 22, 1931, p18
33. Ibid., p19
34. Forbes, September 1, 1931, p14
35. Fortune, February 1935, p166
36. Broadcasting - 1968 Yearbook, p B-250
37. Fortune, February 1935, p166
38. Forbes, September 1, 1931, p14
39. Ibid., p13
40. Fortune, February 1935, p164
41. Ibid., p78
42. Ibid., p168
43. Ibid.
44. Ibid., p166
45. Broadcasting - 1968 Yearbook, p B-250
46. Fortune, February 1935, p166
47. Fortune, July 1933, p64
48. Ibid.
49. MacLaurin, pp137-38
50. Ibid.
51. Ibid.
52. Ibid.
54. Radio Retailing, January 1933, p26
55. Fortune, February 1935, p170
56. Radio Retailing, December 1933, p16
57. Broadcasting - 1968 Yearbook, p B-250
58. Ibid.
59. Fortune, February 1935, p166
60. Ibid.
61. Ibid., p173
62. Ibid., p166
63. Broadcasting - 1968 Yearbook, p B-250
64. Fortune, February 1935, p166
65. Ibid., p170
66. Ibid., p173
67. Radio Retailing, June 1934, p25
68. Fortune, February 1935, p173
69. Ibid.
70. Broadcasting - 1968 Yearbook, p B-250
71. Ibid.
72. Ibid.
73. MacLaurin, p142
74. Ibid.
75. Ibid.
77. MacLaurin, p142
78. Ibid.
79. Broadcasting - 1968 Yearbook, p B-250
80. Ibid.
Chapter IV

1. Fortune, May 1938, P120
2. Ibid.
3. Ibid.
4. Philco Annual Report, 1940, P2
5. Petraleis, P132
6. Fortune, November 1944, P118
7. Philco Annual Report, 1940, P2
8. Ibid.
10. Fortune, November 1944, P118
11. Ibid., P119
12. Ibid.
13. Ibid.
15. Fortune, May 1938, P118
16. Ibid.
17. MacLaurin, P139
18. Ibid.
20. Ibid.
21. Fortune, November 1944, P119
22. Broadcasting - 1968 Yearbook, P B-250
23. Ibid.
24. Philco Annual Report, 1940, P2
25. Radio Retailing, February 1939, P49
26. Radio Retailing, June 1939, P91
27. Radio Retailing, May 1939, P46
28. Business Week, June 28, 1958, P46
29. Business Week, May 4, 1940, P49
31. Fortune, November 1944, PP 120-21
32. Ibid.
33. Ibid., P121
34. Business Week, May 4, 1940, P50
35. Philco Annual Report, 1940, P6
36. Ibid., P3
37. Ibid.
Chapter V

1. Fortune, May 1957, P290
2. Ibid.
3. Ibid.
4. Fortune, February 1959, P115
5. Ibid.
6. Business Week, June 28, 1958, P45
7. Ibid., P52
8. Business Week, April 14, 1956, P52
9. Ibid.
10. Fortune, February 1959, P113
11. Ibid., P116
12. Ibid., P212
13. TIME, September 22, 1961, P112
14. Business Week, September 16, 1961, P34
15. TIME, September 22, 1961, P111
BIBLIOGRAPHY

Periodicals, Newspapers and Annual Reports:


Broadcasting - Yearbook 1968

Business Week, 1929-1981

Electrical World, 1892-1923

Forbes, Sept. 1, 1931, "How Philco Boosted Sales 100%"

Fortune, Feb., 1935, "Philco"
   May, 1938, "Radio - A $537,000,000 Set Business"
   Nov., 1944, "Radios, Refrigerators and Radar"
   May, 1955, "Philco's Carmine"
   May, 1957, "The Electronics Industry"
   Feb., 1959, "The Upheaval at Philco"


Magazine of Wall Street, October 14, 1944, "Philco - Postwar Potentials in Diversification"

Philco Flash, 1930

Philco Ford News - 75th Anniversary Edition 1967

Printer's Ink, 1930-1936

Proceedings of the I.R.E., 1927-1940

Radio Broadcast, 1922-1930

Radio & Television Retailing, 1925-1952

Radio Today, 1937-1941

Sales Management, 1930-1936


Time, 1928-1961
Ford Motor Company, Annual Report - 1961
Philco Corporation, Annual Reports, 1940-1960
Radio Corporation of America, Annual Reports, 1924-1961
Zenith Radio Corporation, Annual Reports, 1946-1961

Books:

Archer, Gleason L., History of Radio to 1926, 1938
Big Business and Radio, 1939


Chandler, Alfred D., Strategy and Structure, 1962


Jome, Hiram L., Economics of the Radio Industry, 1925

Llewellyn, Herbert S., unpublished history of Philco Corporation

MacLaurin, W. Rupert, Invention & Innovation in the Radio Industry, 1949

Petrakis, Harry M., The Founder's Touch - The Life of Paul Galvin of Motorola, 1965

Philco Corporation, Philco Radio Sales Manual - 1926
Philco Furniture History 1928-1940 - unpublished

Radio & TV Factbook - 1977